



MARCH 18, 2014
CITY COUNCIL STUDY SESSION
400 East Military
Fremont NE 68025
5:30 p.m.

AGENDA

1. Meeting called to order
2. Roll call
3. Airport Layout Plan update for Fremont Municipal Airport (staff report)
4. Adjournment

Agenda posted at the Municipal Building on March 17, 2014 and online at www.fremontne.gov. Agenda distributed to the Mayor and City Council on March 17, 2014. The official current copy is available at City Hall, 400 East Military, City Clerk's Office. The City Council reserves the right to go into Executive Session at any time. A copy of the Open Meeting Law is posted in the City Council Chambers for review by the public. The City of Fremont reserves the right to adjust the order of items on this agenda.

STAFF REPORT

TO: Mayor and City Council

FROM: Rian Harkins, Planning Director

DATE: 17 March 2014

SUBJECT: ALP Amendments and Terminal Design Project

Recommendation: None, item is for discussion purposes at this time only.

Background: The consultant for the Airport Terminal Design and Airport Layout Plan (ALP) Amendments, Airport Development Group, will be on hand to discuss progress to date and potential alternatives for future airport expansion.

#3



**TERMINAL AREA PLAN UPDATE
FREMONT MUNICIPAL AIRPORT (FET)**

**DRAFT
MARCH 2014**

Prepared for the:

CITY COUNCIL OF THE CITY OF FREMONT

SCOTT GETZSCHMAN
Mayor

JENNIFER BIXBY
President

STEVE NAVARETTE
KEVIN EAIRLEYWINE

MARK STANGE
LARRY JOHNSON
JOHN ANDERSON

MICHAEL KUHN
TODD HOPPE

and Rian Harkins, AICP, Director of Planning

and the:

CITY OF FREMONT AIRPORT ADVISORY COMMITTEE

ERIC JOHNSON
Chairman

DAVE MONKE
ROBERT STEENBLOCK

JASON HAAS
BILL DUGAN
MIKE KEMPENAR

RON VLATCH
MICHAEL MCGILLICK

and the:

FEDERAL AVIATION ADMINISTRATION, CENTRAL REGIONAL AIRPORTS DIVISION

and the:

NEBRASKA DEPARTMENT OF TRANSPORTATION, AERONAUTICS DEPARTMENT

RONNIE MITCHELL
Director

ANNA LANNIN
Planning and Programming
Division Manager

Prepared by:



Airport Development Group, Inc.
Airport Consultants, Engineers and Planners
1776 South Jackson Street, Suite 950
Denver, Colorado 80127 (303) 782-0882

TABLE OF CONTENTS

SECTION ONE – INTRODUCTION	PAGE NO.
1.0 Introduction	1
1.1 Purpose	1
1.2 Issues.....	1
1.3 Project Participants	2
1.4 Consultant Agreement and Study Documentation	2
SECTION TWO – INVENTORY	PAGE NO.
2.0 Inventory Introduction	3
2.1 Location and Setting	3
Exhibit E: Existing Airport Layout.....	5
2.2 Aviation Activity	6
2.3 Airfield Design Standards.....	6
SECTION THREE – FORECASTS OF AVIATION DEMAND	PAGE NO.
3.0 Forecasts Introduction.....	10
3.1 Aviation Demand Forecasts.....	10
SECTION FOUR – LANDSIDE FACILITY REQUIREMENTS AND ALTERNATIVES	PAGE NO.
4.0 Facility Recommendation and Alternatives Introduction.....	12
4.1 Recommended Landside Facilities	14
4.2 Landside Alternatives	16
Exhibit A1: Terminal Area Alternative No. 1 (Existing Terminal Area)	18
Exhibit A2: Terminal Area Alternative No. 2 (Along West 23 rd St)	19
Exhibit A3: Terminal Area Alternative No. 3 (Along Airport Road)	20
Exhibit A4: Terminal Area Alternative No. 4 (Along Runway 14-32)	21
SECTION FIVE – UPDATED AIRPORT LAYOUT PLAN AND TERMINAL AREA PLAN	PAGE NO.
5.0 Airport Layout Plan and Terminal Area Plan	22
Exhibit I: FET Airport Layout Plan.....	23
Exhibit II: FET Terminal Area Plan.....	24
APPENDICES	
A Presentations	
B Architectural Report from Existing Terminal Building	
C Surveys	

1.0 INTRODUCTION

The City of Fremont as owner, operator and sponsor of the Fremont Municipal Airport (FET) has initiated this update of its airport planning to assess FET's existing and future role and to provide direction and guidance related to short- and long-term on-airport development.

This study will find a course of action over a period of 20 years and beyond for on-airport development. This course of action will be advanced pursuant to City Council prerogative and provide compliance with current Federal Aviation Administration (FAA) airport design standards.

This project and its process will be shepherded through Mr. Rian Harkins, AICP, Director of Planning, coordinated through Fremont's various aviation and non-aviation constituencies as they may wish to participate and approved by the City Council.

The planning, and this resulting document, is intended to be both a forward-looking and flexible document. Resolutions and solutions are proposed well in advance of the likely need; and the plan is flexible enough to change with the need. Federal and state agencies are then similarly able to program funding and be responsive to financing needs.

The remainder of this chapter describes plan purpose, issues, project participants and consultant agreement and study documentation.

1.1 PURPOSE

The purpose of the planning effort is to use developed methods to objectively evaluate and assess on-airport facilities from an aviation use, land use, and development perspective. The potential need for infrastructure and additional facilities will be considered while looking to the future to determine how the airport may more

fully participate in the local and regional economy. Further, this planning will assist City leadership to guide local airport infrastructure investment decisions.

The product of this effort will provide the City with a development program to meet aviation needs in the short- intermediate- and long-range planning periods. It is anticipated that benefits derived from the plan will positively affect the airport, its users, City and County residents and the surrounding area.

1.2 ISSUES

The City last completed formal airport planning in 2003. The City, FAA and the Nebraska Department of Aeronautics (NDA) determined that an terminal area plan update would be beneficial given current activity, on-airport land use concerns and economic conditions. The City of Fremont consulted with FAA and NDA and the planning consultant to consider current potential issues and craft a work plan which addresses resolution. Some of those issues are described as follows and will be given particular attention through the planning process.

Issue Number One:
Existing Terminal Building Disposition

The existing general aviation terminal building may have reached the end of its useful life without rehabilitation. Inadequacies identification along with potential new sites will be considered. Specifically, focus will be made to a new facility perhaps in a different location.

Issue Number Two:
Accommodate Potential Landside Demand

Landside in this context relates to portions of FET's ramp/aprons, the terminal building function/location, aircraft fueling and other services provided to the flying public, automobile access and parking, and other important features

which serve to support airside operations. Accommodation hereto will be considered in an alternatives context.

A sufficient number of demanding aircraft may now, or in the future, use the airport to suggest that some portion of the landside should be designed to accommodate larger airport design standards, including pavement strengths, clearance widths and other on-the-ground features. Again, accommodation hereto will be considered in an alternatives context.

1.3 PLANNING PROCESS AND PARTICIPANTS

A planning process is primary and accompanies this narrative. This planning process and participation through the process from those with interests in the overall aviation community is important to creation of this narrative and its drawings.

The planning process begins with preparation of the necessary data and mapping to be used in the study to prepare this narrative along with its ALP drawings for FET.

The narrative and ALP drawings will be prepared in accordance with FAA guidelines, policies and procedures and applicable federal and state laws and standards. Previous reports and associated work will be reviewed, as necessary.

The project process will be engaged in full coordination with the City Council, federal, state and local planning agencies, the representatives of which will be consulted for input and invited to attend progress meetings. The end result will provide a planning document that recommends a responsive course of action and a financially-unconstrained plan, complete with current cost estimates for facility improvements.

Various airport constituencies, including the general public will be solicited through the public

participation process. This process includes two public meetings and a presentation to the City Council. The first meeting introduces the planning and previews the alternatives planning. The second meeting will detail the alternatives and work to build consensus on an acceptable configuration.

FAA and NDA will advise on project progress and documents at key project points. The planning consultant, Airport Development Group, Inc., will prepare project documentation, guide project progress, solicit guidance, and work to build consensus from plan participants at key project points.

1.4 CONSULTANT AGREEMENT AND STUDY DOCUMENTATION

The City of Fremont entered into an agreement with Airport Development Group, Inc. in January 2014 to conduct this planning effort and to prepare this document.

This study is prepared in accordance with these FAA advisory documents:

Previous Airport Documents (Various Years)	
150/5190-4	<i>A Model Zoning Ordinance to Limit Height of Objects around Airports</i>
150/5070-6	<i>Airport Master Plans</i>
150/5190-5	<i>Exclusive Rights and Minimum Standards for Commercial Aeronautical Activities</i>
150/5300-13	<i>Airport Design</i>
150/5340-1	<i>Standards for Airport Markings</i>
150/5340-18	<i>Airport Sign System Standards</i>
150/5360-9	<i>Planning and Design Guidelines for Airport Terminal Facilities at Non-Hubs</i>
150/5050-4	<i>Citizen Participation in Airport Planning</i>
150/5230-4	<i>Aircraft Fuel Storage, Handling and Dispensing on Airports</i>
5100.38C	<i>Airport Improvement Program Handbook</i>

This narrative report presents these chapters:

Section 1	Introduction
Section 2	Inventory
Section 3	Forecasts of Aviation Demand
Section 4	Facility Requirements and Alternatives Analysis
Section 5	Updated Airport Layout Plan and Drawings

Alternative exhibits are found in Chapter Four:

Exhibit A1	Terminal Area Alternative No. 1
Exhibit A2	Terminal Area Alternative No. 2
Exhibit A3	Terminal Area Alternative No. 3
Exhibit A4	Terminal Area Alternative No. 4

These ALP Drawings are found in Chapter Five:

Exhibit I	Airport Layout Plan
Exhibit II	Terminal Area Plan

2.0 INVENTORY INTRODUCTION

This planning effort is intended to instruct and supplement NDA airport planning and programming efforts. This plan is a more detailed look at the FET’s landside, while national and state planning step back and generally consider the larger role FET plays in the overall system of airports.

FET is part of the US national transportation system and the FAA’s National Plan of Integrated Airport Systems (NPIAS). Of the nation’s nearly 5,200 public-use airports, the NPIAS comprises nearly 3,400 airports which are considered significant by FAA to the national airspace system. As a participating facility in the program, the Authority as sponsor is eligible to receive federal funds for airport improvements.

FET is eligible to receive funding through NDA, and other state agencies. The Nebraska Airport

System Plan Update (2002) identifies FET as a National General Aviation Airport in the Nebraska system of airports. State system planning for airports generally includes a more detailed analysis not only of commercial service, but general aviation airports like FET.

2.1 LOCATION AND SETTING

FET is located in extreme southeastern Dodge County in eastern Nebraska near 41° 26’ 59.6” North, 96° 31’ 12.7” West. FET is entirely within the City of Fremont boundaries due west of the residential and business areas of the City. FET is approximately 30 miles due northwest from Omaha, Nebraska, via U.S. Highway 6 to U.S. Highway 275 to U.S. Highway 30. Airport properties currently approximate 353 fee acres and 75 acres under avigation easement. The airport beacon is adjacent to the main apron. The Airport Surface Observing System (ASOS) and segmented circle with wind indicator units are found near midfield.

Runway 14-32 is approximately 7,200 feet long and 100 feet wide. It is constructed of concrete with an estimated 28,000 pounds single-wheel gear (SWG) and 48,000 pounds duel-wheel gear (DWG) design pavement strength. 850-foot displacements are found on either end and declared distances restrict use. The effective runway longitudinal gradient is less than 0.1 percent and runway longitudinal line of sight is met. Runway pavements are in excellent condition as reported by NDA. The runway is equipped with a Medium Intensity Runway edge-Lighting (MIRL) system. Both runway ends are equipped with a two-light Precision Approach Path Indicator (PAPI) VGSI (Visual GlideSlope Indicator) lighting systems and Runway 14 is equipped with a Runway End Identifier Lighting Systems (REIL). Each runway end is marked with elements

appropriate for non precision aircraft operation including aiming points.

Runway 1-19 is approximately 2,316 feet long and 50 feet wide. It is constructed of asphalt with an estimated 12,500 pounds single-wheel gear (SWG) design pavement strength. The effective runway longitudinal gradient is less than 0.1 percent and runway longitudinal line of sight is met. Runway pavements are in poor condition as reported by NDA. Each runway end is marked with elements appropriate for visual aircraft operation excluding aiming points.

Aircraft traffic pattern turns are prescribed:

- ✓ Left Traffic for Runway 14
- ✓ Right Traffic for Runway 32
- ✓ Left Traffic for Runway 1
- ✓ Right Traffic for Runway 19

Both runway alignments, individually, meet FAA’s recommended 95 percent coverage of wind in all-weather conditions. Wind data gathered from the AWOS at Columbus Regional Airport (OLU) was used to create the all-weather wind for FET. The wind rose is found on Exhibit E in this chapter.

Three instrument approach procedures are written to accommodate aircraft operation in inclement weather. Table 1-1 below tabulates data and notes best minima for straight-in and circling operation. Note that departure minima are specified for Runway 14 and 19 and departure procedures and minima are specified for Runway 14.

Table 1
FET Instrument Approach Procedures (IAPs)

IAP Name	A-Minima	B-Minima	C-Minima	D-Minima
RNAV (GPS) RWY 14 (Circling)	600-1	600-1	900-2½	Not Authorized
RNAV (GPS) RWY 14 (Straight-in LPV)	300-1	300-1	300-1	Not Authorized
RNAV (GPS) RWY 32 (Circling)	600-1	600-1	900-2½	Not Authorized
RNAV (GPS) RWY 32 (Straight-in)	300-1	300-1	300-1	Not Authorized
VOR/DME-RWY 14 (Circling)	700-1	700-1	900-2½	Not Authorized
VOR/DME-RWY 14 (Straight-in)	700-1	700-1	700-1¾	Not Authorized

Runway 14-32 is equipped with partial parallel Taxiway A. All taxiway pavements are 35 feet wide, equipped with a Medium Intensity Taxiway edge-Lighting (MITL) system, with holdlines and airfield signage no closer than 250 feet from runway centerline on connecting taxiways.

Taxiway B connects the A/A3 intersection with Runway 1-19, is 35 feet wide and equipped with MITL. Taxiway C connects near the Runway 19 end to the main apron and is 50 feet wide. Taxiway B and C have holdlines and signage no closer than 125 feet from runway centerline.

The main apron approximates 7,777 square yards of recently rehabilitated asphalt with marked tiedown positions along the apron edge. Note that not all of this yardage is available for public aircraft operations as some fronts hangars.

This apron is functionally-constrained as to accommodate (in accordance with FAA design standards) only smaller aircraft (Group I). A 2,400 (±60’x±40’) square foot terminal building fronts the northern apron edge. This building accommodates the FBO and the transient and local pilot with offices, lounge, and pilot area. Approximately 850 square yards of paved auto parking (22 stalls) is found adjacent to and north of the building. 100LL and Jet-A aviation fuels are for retail sale via two 10,000 gallon self-serve tanks.

Table 2
Runway Design Code (RDC) Criterion

Aircraft Approach Category (AAC)	Aircraft Speed Range (Knots)
A	Less than 91
B	More than 91, but less than 121
C	More than 121, but less than 141
D	More than 141, but less than 166
E	More than 166

Airplane Design Group (ADG)	Aircraft Wingspan Range	Aircraft Tail Height Range
I	Up to but not including 49'	Up to but not including 20'
II	49' up to but not including 79'	20', up to but not including 30'
III	79' up to but not including 118'	30', up to but not including 45'
IV	118' up to but not including 171'	45', up to but not including 60'
V	171' up to but not including 214'	57', up to but not including 60'
VI	214' up to but not including 262'	66', up to but not including 80'

IAP Capability in Terms of Visibility (Statute Mile)

RVR 4000	Lower than one mile but greater than ¾ mile
RVR 2400	Lower than ¾ Mile but not lower than ½ mile
RVR 1600	Lower than ½ Mile but not lower than ¼ mile
RVR 1200	Lower than ¼ Mile

Beyond RDC, Taxiway Design Group (TDG) is an additional criteria; it is based upon the dimensions of aircraft undercarriage, specifically the distance between the outer edge of the main gear, termed the Main Gear Width (MGW) with the distance between the Cockpit to Main Gear, termed CMG. Note that if the nose wheel fronts the cockpit, the CMG distance increases. Various MGW and CMG ranges combine to make TDG's 1 through 7, with 7 accommodating the largest ranges, and aircraft. The visualization on the following page, as Figure 1-4, shows the physical aircraft characteristics associated with ADG and TDG. In many instances ADG and TDG for individual airplanes will be within the same grouping; for example, ADG-I with TDG-1, ADG-II with TDG-2, and AGD-III with TDG-3. Notable exceptions generally include aircraft with a relatively long fuselage.

Finally, aircraft weight is an additional criterion to be able to determine suitable application of all airport planning and design at FET.

Aircraft which weigh less than 12,500 pounds (maximum certificated gross), regardless of wheel configuration, are termed utility or small aircraft. Those which weight more are termed non-utility or large aircraft. Note that the runway, taxiway and the main apron pavement strengths are currently 12,500 pounds SWG.

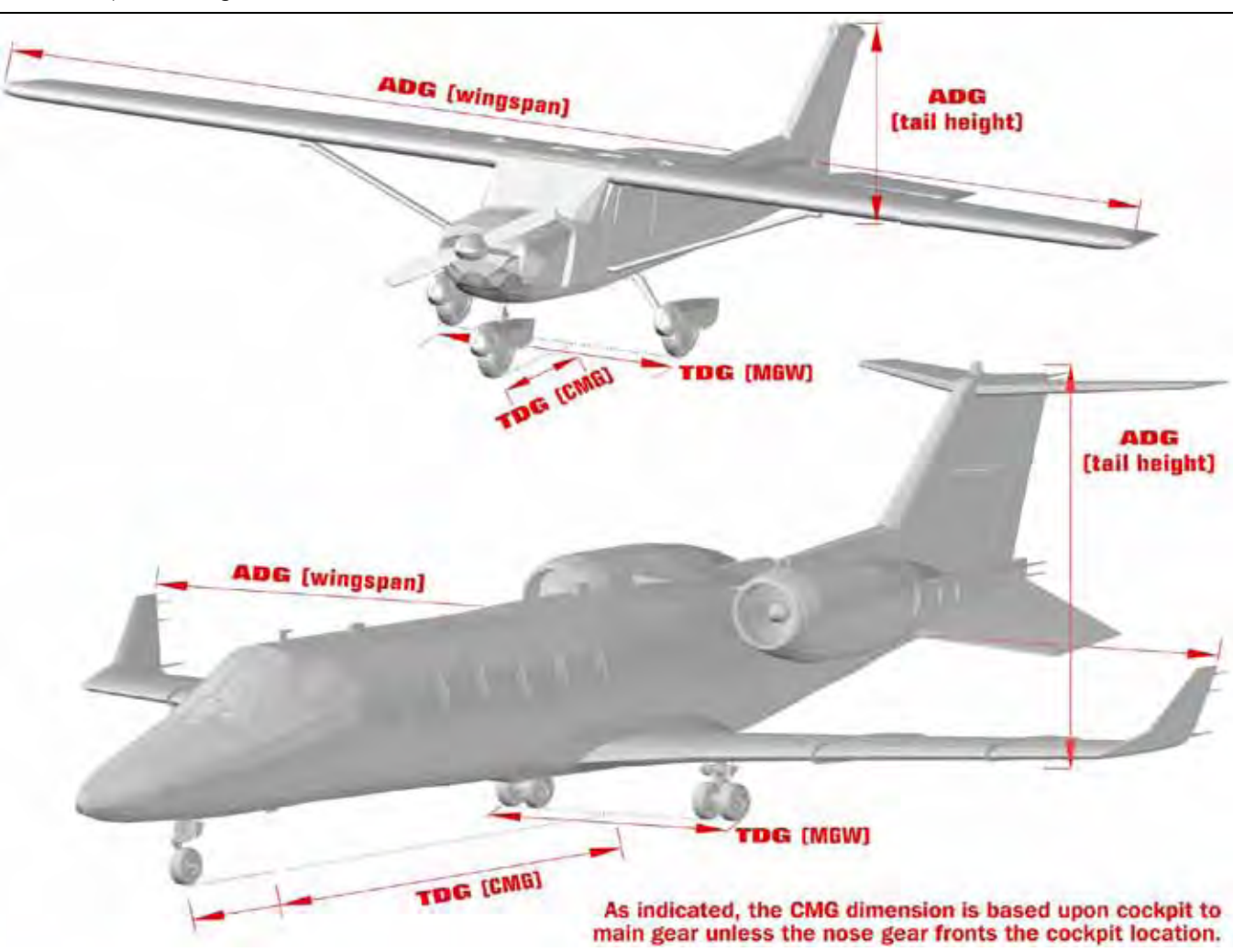
The most demanding aircraft or group of aircraft with alike physical and operational characteristics that use the airport regularly; generally conducting at least 500 annual takeoffs or landings, is termed the design aircraft.

The current criterion for Runway 14-32 are:

A&B-II; TDG-2, Large Aircraft; >RVR4000, And, the current criterion for Taxiway A, its connectors and aprons is **TDG-2, Large Aircraft.** The current design aircraft is the **Cessna Citation CJ4 (C525C); a B-II, TDG-2, large aircraft.**

Runway 1-19 is planned to be closed.

Figure 1
Select Airport Design Criterion



Design standards encompass various areas, zones, surface gradients and separations standards; select standards are described and tabulated within Table 3 based upon the current design aircraft:

1. A Runway Protection Zone (RPZ) is a trapezoidal area off each runway end, established to enhance protection of people and property by clearing incompatible land uses.
2. The Runway Safety Area (RSA) and Taxiway Safety Area (TSA) are established to ensure that the ground surface adjacent to runways and taxiways is suitably prepared to reduce the risk of damage in the event of an aircraft

deviation from paved surfaces. Safety area specifications are dimensional, grade-specific and material-specific.

3. The Runway Object Free Area (ROFA) and Taxiway Object Free Area (TOFA) are established to ensure the safety of aircraft operations by having an area free of objects, except those frangibly-mounted objects, necessary for air navigation or ground maneuvering purposes.
4. The Obstacle Free Zone (OFZ) is a volume of airspace up to 150 feet above airport elevation, centered on runway centerline, primarily established to preclude taxiing and parked aircraft. The runway holdline is sometimes located to coincide with limits of the OFZ.

5. The purpose of the Approach and Departure Clearance Surfaces is to provide obstacle clearance for visual approaches and instrument approach procedures. These surfaces are generally three-dimensional trapezoids with 20:1 or 34:1 surfaces extending upward and outward away from each end of runway.

Note that these are the minimum specifications and exceeding the specifications, for an individual project is generally acceptable, but may not be eligible for federal or state funds.

Title 14 of the Code of Federal Regulations, Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace* specifies various imaginary surfaces considered to protect the airspace around FET from objects of natural growth or man-made features, termed obstructions. These surfaces are the primary, approach, transitional, horizontal and conical as described in Section 77.25 and as follows:

- ✓ The primary surface is longitudinally centered on the runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on centerline.

The width of the primary surface is based on the type of approach available or planned for each runway.

- ✓ The approach surface is a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach available or planned for that runway end.
- ✓ The transitional surfaces extend outward and upward at right angles to the runway centerline and runway centerline extended at a slope of 7:1 (± 8.13 degrees) from the sides of the primary surface and from the sides of the approach surfaces.
- ✓ The horizontal surface is a level horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of either 5,000 or 10,000 feet from the center of each end of the primary surface of each runway and connecting the adjacent arcs with lines of tangency.
- ✓ The conical surface extends outward and upward from the periphery of the horizontal surface at a slope of 20:1 (± 2.86 degrees) for a horizontal distance of 4,000 feet.

Table 3
Select FET Airport Design Standards for Runway 14-32

Standard/Specification	Standard	Existing
Runway Width	75 Feet	100 Feet
Effective Runway Longitudinal Grade	Within $\pm 2\%$ Maximum	Within $\pm 2\%$ Maximum
Runway Pavement Strength (Pounds)	Recommended 12,500 SWG	>12,500 SWG
Runway Protection Zones	500'x700'x1,000'	500'x700'x1,000'
Runway Safety Area Width/Beyond End	150'/300'	150'/300'
Runway Object Free Area Width/Beyond End	500'/300'	500'/300'
Taxiway Safety Area Width	79'	79'
Taxiway/Taxilane Object Free Area Width	131'/115'	131'/115'
Runway to Parallel Taxiway A	240'	400'
Runway to Aircraft Holdline on Taxiway A	200'	250'
Runway to Aircraft Parking	>250'	>250'
Obstacle Free Zone Width/Beyond End	400'/200'	400'/200'
Approach Surfaces (20:1)	800'x3,800'x10,000'	800'x3,800'x10,000'
Part 77 Primary Surface Width/Beyond End	500'/200'	500'/200'
Part 77 Approach Surfaces Dimension/Slope	500'x3,500x5,000'; 34:1	500'x3,500x5,000'; 34:1

3.0 FORECASTS INTRODUCTION

The forecasts of aviation demand are the basis for determining current and future airport facility requirements. These requirements are then used to plan airport development such as runways and taxiways, apron area, hangar space and selection of the appropriate airfield design standards. The forecasts establish the nature and magnitude of aeronautical activity and the associated need for airport development for the 20-year planning period.

History has repeatedly demonstrated that airport utilization will vary significantly, depending upon the level of service provided for the public and regional economic conditions. Due to the highly elastic nature of the aviation industry, most aviation forecasts tend to follow trends rather than fluctuations in any given year.

3.1 FORECASTS OF AVIATION DEMAND

No formal forecasting is to be conducted for this planning; only percentage estimates are derived. Existing and historical data was simply reviewed and a *constrained*, subjective judgment was made and tabulated as is found in Table 4. Note that percentage increase estimates are found next to the forecast value within the table.

The most current master plan and system plan are perhaps out of date for purposes herein. Several other sources may be reviewed to determine an appropriate level of forecasting, including the onsite interview conducted in late January 2014 to estimate operations by aircraft type.

Forecast information, for purposes herein, is valuable not for formal FAA purposes, but for planning an adequate amount of apron, for example. More specifically with respect to apron, FAA has created modeling software based upon *Airport Design* which provides an eligible (but not

necessarily funded) quantity of apron for future planning purposes based upon the number of itinerant operations.

3.1.1 Aircraft Operations

The following is of subject for the forecast for aircraft operations as found in Table 4:

1. Planning Years:
 - ✓ 2014, 2019, 2024, 2033
2. Airport Reference Code/Class:
 - ✓ A&B-I Small
 - ✓ A&B-II Small
 - ✓ A&B-II Business
 - ✓ C&D-II Corporate
 - ✓ C&D-II Large Corporate

With respect to the above Airport Reference Code/Class, note that:

- *A&B-I Small* forecasts all aircraft types weighing less than 12,500 pounds, with approach speeds up to 121 knots, and wingspans up to 49 feet, inclusive.

Example aircraft include:

- ✓ Cessna 152,172, 210, 206, 414, 441
- ✓ Piper Cub, Arrow, Comanche, Saratoga
- ✓ Beechcraft Bonanza, Duke
- ✓ Cirrus, Mooney, Diamond, Glasair
- ✓ Helicopters, Ultralights

- *A&B-II Small* forecasts all aircraft types weighing less than 12,500 pounds, with approach speeds up to 121 knots and wingspans up to 79 feet, inclusive.

Example aircraft include:

- ✓ Cessna 441, Mustang
- ✓ Beechcraft King Air 90/100, Premier
- ✓ Embraer Phenom, Eclipse 500

- *A&B-II Business* forecasts all aircraft types weighting greater than 12,500 pounds, with approach speeds up to 121 knots and wingspans up to 79 feet, inclusive.

Example aircraft include:

- ✓ Cessna Citation 550, 650, Sovereign
 - ✓ Dassault Falcon 20,50,200
 - ✓ Hawker 400, 850XP,
- *C&D-II Corporate* forecasts all aircraft types weighting up to 60,000 pounds, with approach speeds up to 166 knots and wingspans up to 79 feet, inclusive.
- Example aircraft include:
- ✓ Cessna Citation X
 - ✓ Bombardier Challenger 300, 605
 - ✓ Lear 35, 45, 60, 85 (Weight Excepted)
 - ✓ Dassault Falcon 900, 2000
- C&D-II Large Corporate forecasts all aircraft 60,000 pounds or greater, with approach speeds up to 166 knots and wingspans up to

- 79 feet, inclusive.
- Example aircraft include:
- ✓ Bombardier Global Express, Challenger
 - ✓ Gulfstream II, III, 550, 650
 - ✓ Falcon 7X
 - ✓ Hawker Horizon
- 3.1.2 Based Aircraft**
- The following is of subject for the forecast of based aircraft as found in Table 4:
1. Planning Years:
 - ✓ 2014, 2019, 2024, 2033
 2. Aircraft Type:
 - ✓ Single-Engine Piston
 - ✓ Multi-Engine Piston
 - ✓ Twin-Turbo Prop

- ✓ Jet
 - ✓ Helicopter/Other
- 3.1.3 Operations Mix**
- The following is of subject for the forecast of aircraft operations mix as found in Table 4:
1. Planning Years:
 - ✓ 2014, 2019, 2024, 2033
 2. Operations Type:
 - ✓ Local Operations (those operations performed by aircraft that remain in the local traffic pattern, execute simulated instrument approaches or low passes at the airport, and the operations to or from the airport and a designated practice area **within a 20-mile radius of the tower**)
 - ✓ General Aviation Itinerant (those non-local operations under FAR Part 91)
 - ✓ Air Taxi Itinerant (those non-local operations under FAR Part 135)
 - ✓ Itinerant Military

- in the ability to serve forecasted demand are highlighted, and recommendations are made regarding physical improvements needed to correct identified shortcomings.
- Then, a series of four phased-development alternatives are prepared and visualized to address aggregate demand over the 5, 10 and 20 -year periods.
- Specific aims for landside development in this regard include:
1. Plan aviation land uses and propose aviation-related facilities which will meet anticipated demand, and which will also allow for continued demand accommodation in case aviation and regional economic activity is more robust than anticipated.
 2. Plan aviation-related land uses and propose facility locations which will allow the FET to be as financially self-sufficient as possible.
 3. Minimize runway and taxiway crossings from one side of the runway to another, and provide for an efficient airfield design.

Table 4
Forecasts of Aviation Demand

Aircraft Operations	2014	2019	2024	2033
A&B-I Small	18,120	18,664 (3%)	19,207 (6%)	19,932 (10%)
A&B-II Small	2,500	2,575 (3%)	2,650 (6%)	2750 (10%)
A&B-II Business	1,200	1,248 (4%)	1,248 (4%)	1344 (12%)
C&D-II Corporate	330	347 (5%)	347 (5%)	376 (14%)
C&D-II Large Corporate	150	155 (5%)	159 (5%)	171 (14%)
Total Operations	22,300	22,988	23,611	24,573
Based Aircraft	2014	2019	2024	2033
Single-Engine Piston	40	41	43	45
Multi-Engine Piston	7	7	7	8
Twin-Turbo Prop	0	0	2	3
Jet	0	1	2	4
Helicopter/Other	1	2	3	3
Total Based Aircraft	48	51	57	63
Operations Mix	2014	2019	2024	2033
Local Operations	12,265 (55%)	12,643 (55%)	12,750 (54%)	13,024 (53%)
Itinerant; GA (Part 91)	6,244 (28%)	6,437 (28%)	6,729 (28.5%)	7,126 (29%)
Itinerant; Air Taxi (Part 135)	3,568 (16%)	3,678 (16%)	3,896 (16.5%)	4,177 (17%)
Itinerant; Military	223 (1%)	230 (1%)	236 (1%)	246 (1%)
Total Operations	22,300	22,988	23,611	24,573
Peaking Operations	2014	2019	2024	2033
Total Operations	22,300	22,988	23,611	24,573
Peak Month	2,230 (*.1)	2,299 (*.1)	2,361 (*.1)	2,457 (*.1)
Peak Day	74 (/30)	77 (/30)	79 (/30)	82 (/30)
Peak Hour	11 (*.15)	11 (*.15)	12 (*.15)	12 (*.15)

- 3.1.4 Peaking Operations**
- The following is of subject for both the forecast of peak aircraft operations as found in Table 4:
1. Planning Years:
 - ✓ 2014, 2019, 2024, 2033
 2. Operations Type:
 - ✓ Total Operations (from 3.1.1)
 - ✓ Peak Month (total operations divided by 10%)
 - ✓ Peak Day (peak month operations divided by 30)
 - ✓ Peak Hour (peak day operations divided by 15%)

4.0 LANDSIDE FACILITY REQUIEIMENTS AND ALTERNATIVES INTRODUCTION

Given that future aviation activity levels are determined, the ability of existing facilities to satisfy this demand is to be evaluated. Landside deficiencies identified determine airport needs throughout the 20-year planning period. This chapter examines impacts to the airport due to the forecasts of aviation demand. Shortcomings

- Examples of aviation-related land uses include:
1. General Aviation Terminal/Ramp
 2. Corporate Aviation Terminal/Ramp
 3. Air Cargo
 4. Aircraft Maintenance and Support
 5. Aircraft Rescue and Structural Firefighting
 6. On-Field Agricultural/Agricultural Lease
 7. Aviation-Related Light Industrial
 - a. Parts Manufacturing and Assembly
 - b. Flight Simulator
 - c. Defense Contractor
 - d. Aerial Photography/Photogrammetry
 - e. Aerial Spray
 8. Fixed Base Operation (FBO)
 - f. Aircraft Charter, Storage, Sales
 - g. Aircraft Repair and Wash
 - h. Pilot Supplies
 - i. Pilot Lounge, Flight Planning
 - j. Flight Training
 - k. Food Services/Catering
 - l. Office/Overnight Accommodations

- m. Restrooms
- 9. Aircraft Storage
 - n. T-Hangar
 - o. Executive Hangar
 - p. Mixed-Use Hangar
 - q. T-Shade
- 10. US Government
 - r. Military
 - s. Air Traffic Control
 - t. Navigational Aids
 - u. Homeland Security
 - v. Public Safety and Emergency Facilities
 - w. Weather Collection and Dissemination
 - x. Satellite Communications

Again, landside facilities are those portions of the airfield which are not directly related to the landing and take-off of aircraft but support it.

Importantly, several current predispositions are foundational for a landside and terminal area

planning at FET. Current circumstances and the historical airport planning define current City priorities. These follow and are partially the basis for Table 5's *future* column standards.

1. Runway 1-19 is to be closed in the very near future.
2. A new configuration for West 23rd Street is imminent. The primary consequence of this modification is that the road alignment claims much of the existing terminal building's auto parking area
3. Given that FET is expected to continue to accommodate larger, faster and heavier aircraft, a transition from a Business (B-II) Class facility to a more Corporate (C-II) Class facility should be planned.
4. US Highway 30 is planned for relocation away from the Runway 14 end in the future. Although the time frame for this relocation is a bit of a moving target, road relocation planning has been formalized and funding moves ever-closer to consummation. This

Table 5
Existing (A/B-II, Large Aircraft, Greater Than ¾ Mile) and
Future (C/D-II, Large Aircraft, ¾ Mile) Airfield Design Standards for Runway 14-32

Standard/Specification	Existing	Future
Runway/Taxiway Width	75'/35'	100'/35'
Runway Longitudinal Grade ¹	Within ±2% Maximum	Within ±1.5% Maximum
Runway Pavement Strength (Pounds)	48,000 DWG	48,000 DWG or greater
Runway 14 Protection Zone	500'x700' x1,000'	1,000'x1,510'x1,700'
Runway 32 Protection Zone	500'x700' x1,000'	1,000'x1,010'x1,700'
Runway Safety Area Width/Beyond End	150'/300'	500'/1,000'
Runway Object Free Area Width/Beyond End	500'/300'	800'/1,000'
Taxiway Safety Area Width	79'	79'
Taxiway/Taxilane Object Free Area Width	131'/115'	131'/115'
Runway 14-32 to Parallel Taxiway	240'	300'
Runway 14-32 to Aircraft Holdline	200'	250'
Runway 14-32 to Aircraft Parking	200'	500'
Obstacle Free Zone Width/Beyond End	400'/200'	400'/200'
Runway 14 Approach Clearance (20:1)	800'x3,800'x10,000'	800'x3,800'x10,000'
Runway 14 Departure Clearance (40:1)	1,000'x6,466'x10,200'	1,000'x6,266'x10,200'
Runway 32 Approach Clearance (20:1)	800'x3,800'x10,000'	800'x3,800'x10,000'
Runway 32 Departure Clearance (40:1)	1,000'x6,466' x 10,200	1,000'x6,266'x10,200'
FAR Part 77 Primary Surface Width/Beyond End	500'/200'	1,000'/200'
FAR Part 77 Approach Surface, Runway 14	500'x3,500x10,000'; 34:1	1,000'x4,000x10,000'; 34:1
FAR Part 77 Approach Surface, Runway 32	500'x3,500x10,000'; 34:1	1,000'x3,500x10,000'; 34:1

highway is the defining obstruction which requires the current Runway 14 displacement. Were the highway moved, the displacement could be reclaimed and visibility improved to ¾-mile for the current RNAV and perhaps the VOR IAP to Runway 14. Fee land acquisition would also be necessary.

5. The current terminal building is a relatively aged facility and rehabilitation will be necessary to extend its useful life, should that be specified by the City. More detail in this regard is provided in Appendix D. This appendix contains an architectural reporting of building insufficiencies.

4.1 RECOMMENDED LANDSIDE FACILITIES

Various landside recommendations are derived based upon the forecasts of aviation demand. These relate to apron and circulation area, terminal building and aircraft hangar area requirements, and automobile access area.

4.1.1 Apron

The existing terminal apron provides an area of approximately 7,777 square yards, not all of which is available for circulation. This aircraft parking area currently accommodates several aircraft parking areas with tie-downs, and is primarily used on an unassigned basis because of area constraints. Planning for both based and itinerant apron is made.

48 aircraft currently base at FET and based

aircraft apron area is, and will continue to be required. All current aircraft owners hangar their aircraft due to personal choice and weather, but reserving one or two spots on the apron for an aircraft pending new hangar construction, for example, is recommended.

A standard 600 square yards of area per single-engine aircraft and 800 for multi-engine aircraft is used for based aircraft apron area. Note that these area calculations do not include necessary taxiway/taxilane to parking positions.

Apron requirements for itinerant aircraft activity are estimated a bit differently. As previously noted, FAA has created modeling software entitled *Apron Size Calculations for Transient Aircraft* based upon *Airport Design* which provides an eligible (but not necessarily funded) apron area for future planning purposes predicated upon the number of itinerant aircraft operations.

Table 6 shows recommendations for both based and itinerant aircraft apron area, while noting deficiencies. As can be seen from the analysis and based upon the forecasts of aviation demand, additional aircraft apron is necessary now and in the longer-term.

4.1.2 Buildings and Auto Parking

A general aviation terminal and administration building should typically provide office space, a

Table 6
Apron Area Recommendations

Based Aircraft Apron Area	2014	2019	2024	2033
Single-Engine (Not Hangared)	1	1	1	1
Apron Recommendation (Square Yards)	600	600	600	600
Multi-Engine (Not Hangared)	1	1	1	1
Apron Recommendation (Square Yards)	800	800	800	800
Itinerant Aircraft Apron Area	2014	2019	2024	2033
Apron Recommendation (Sq. Yards)	21,755	22,426	23,034	23,972
Total Recommended Apron Area	23,155	23,826	24,434	25,372
Apron Area Deficiency (Square Yards)	16,778	17,449	18,057	18,995

waiting room for pilots and passengers, a small area for food and drink vending, a public telephone, and public restrooms.

Terminal floor space requirements are a function of the anticipated number of peak hour operations and airport users. Peak hour users are computed as 1.5 passengers per each local aircraft arrival and 2.5 passengers per itinerant arrival. This is an older estimating methodology, but perhaps valuable for planning purposes. An approximate 55/45 percent mix of local/itinerant activity is planned.

Typical floor space requirements, expressed in square feet per user are as follows for general aviation terminal facilities:

- Waiting Lounge: 15
- Office Space: 3
- Public Conveniences 1.5

- Concession/Vending; 5 and
- Storage, Circulation and HVAC; 24.5.

Terminal building area recommendations are shown in Table 7. The airport's 2,400 square foot terminal will be adequate for the planning period, if refurbishment is in order.

FET currently accommodates 12 conventional hangars and 3 T-hangars, totaling approximately 104,000 square feet of aircraft storage area. It is presumed that 100 percent of future based aircraft will require hangar space given current owner preferences. Note that future aircraft may be located in T-hangar units, in executive conventional, small box hangars, or collocated with other aircraft in a larger hangar. Furthermore, a single aircraft, only requiring 1,200 square feet, may be located in a hangar 2,500 square foot hangar, as is the case in

Table 7
Building Area Recommendations

Aircraft Storage Area	2014	2019	2024	2033
<i>Single-Engine Based Aircraft (Not on Apron)</i>	<i>39</i>	<i>40</i>	<i>42</i>	<i>44</i>
Single-Engine Hangar Area Required	46,800	48,000	50,400	52,800
<i>Multi-Engine Based Aircraft (Not on Apron)</i>	<i>6</i>	<i>6</i>	<i>6</i>	<i>7</i>
Multi-Engine/Twin-Turbo Prop Hangar Area Required	13,200	13,200	13,200	15,400
<i>Jet (Small) and Twin Turbo-Prop Based Aircraft</i>	<i>0</i>	<i>1</i>	<i>3</i>	<i>5</i>
Jet (Small) Hangar Area Required	0	4,000	12,000	20,000
<i>Jet (Large) Based Aircraft</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>2</i>
Jet (Large) Hangar Area Required	0	0	12,000	24,000
<i>Helicopter/Other Based Aircraft</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>3</i>
Helicopter/Other Hangar Area Required	3,000	6,000	12,000	12,000
Total Aircraft Storage Recommended (Square Feet)	63,000	71,200	99,600	124,200
Terminal Building Area	2014	2019	2024	2033
<i>Peak Hour Operations</i>	<i>11</i>	<i>11</i>	<i>12</i>	<i>12</i>
<i>Peak Hour Users</i>	<i>11</i>	<i>11</i>	<i>12</i>	<i>12</i>
Waiting Lounge	161	161	176	176
Office Space	32	32	35	35
Public Conveniences	16	16	18	18
Vending/Concession	54	54	59	59
Storage, Circulation, HVAC	263	263	287	287
Total Terminal Building Area Recommended (Square Feet)	526	526	573	573

Table 8
Automobile Parking Area Recommendations

	2014	2019	2024	2033
Peak Hour Users	11	11	12	12
Tenants/Employees	10	10	11	13
Automobile Parking Positions Required	21	21	23	25
Total Automobile Parking Area Required (Square Yards)	735	735	805	875

several instances at FET now. The City currently maintains a waitlist for hangars.

Hangar area recommendations found within Table 7 are based upon: 1,200 square feet for single-engine piston aircraft, 2,200 square feet for multi-engine piston, 4,000 square feet for smaller jet and twin-turbo prop aircraft, aircraft, 12,000 square feet for larger jet aircraft, and 1,500 square feet for helicopter/other.

Approximately 22 paved automobile parking spaces are near the terminal building. A formal parking lot is recommended and adequate space should be strategically planned and protected. The number of automobile parking spaces required is a function of peak hour users and tenant/employee demand. The peak hour user count was previously derived for the terminal building analysis. The number of tenants and employees at an airport like FET is estimated to be one person per five based aircraft. A standard 35 square yards per automobile is used to complete Table 8.

4.2 LANDSIDE ALTERNATIVES

Four alternative exhibits are fielded for purposes herein in order to visualize, estimate costs and provide a meaningful basis for City decision making about FET's landside future:

- Terminal Area Alternative No. 1
(Improve Existing Terminal Area)
- Terminal Area Alternative No. 2
(Develop Along West 23rd Street)
- Terminal Area Alternative No. 3
(Develop Along Airport Road)

- Terminal Area Alternative No. 4
(Develop Along Runway 14-32)

Several items are worth noting for decision-making purposes at this point:

- ✓ Section 4.1 identifies area which according to FAA modeling and estimating methodologies may be eligible for FAA or NDA financial participation. The plan in no way obligates FAA, NDA, or City financial participation. The current reality is that general aviation terminal area improvements generally do not complete well for FAA aviation funds. The City may be limited to an annual \$150,000 in Non Primary Entitlement funding. Additional funding is the prerogative of FAA and NDA.
- ✓ Planned development is conceptual only, and can be changed at the will of the City Council with a planning update, now or at any time in the future. This narrative and its accompanying planning process is intended to create a 20-year 'road map'; and, figuratively speaking, roads are sometimes improved, modified or relocated. The selected alternative, or modification to make a selected alternative, serves as an informal agreement with FAA and NDA for FET's future development.
- ✓ Environmental clearance, pursuant to the National Environmental Policy Act of 1969, will be necessary for FAA financial participation.
- ✓ FAA or perhaps NDA may require justification beyond that demonstrated in this narrative for improvements eligibility. For example, FAA may wish letters substantiating large aircraft use to make a given portion of a future apron eligible for FAA financial participation.
- ✓ Upon construction, planned development must be shown on the approved Airport Layout Plan (ALP), receive a favorable determination via filing of FAA Form 7460, and the City or the

State may have various permits which need approvals prior to commencement.

Overall, a selected course of action for the future represents the formulation of a development policy as much as the process of concept selection. The development policy should:

- 1. Comply with FAA standards/guidelines,
- 2. Be compatible with other existing and proposed uses on and off the airport,
- 3. Dovetail with City comprehensive planning,

Brief alternative descriptions supplement the alternative exhibits following this page. The alternatives shows 5, 10 and 20-year planned, phased development for demand identified in the forecast of aviation demand, and beyond. The mention of *beyond* in this instance is important because it is important to show robust in case demand exceeds forecast or a given tenant(s) wish more robust facilities. The first five years of planned development is shown in blue, years 6-10 is shown in brown and the final 10 years of the 20-year planning term is shown as purple.

4.2.1 Alternative No. 1

Alternative No. 1 shows:

- 1. A rehabilitated terminal building with the terminal area remaining where it is for all intents and purposes.
- 2. The hangar due west of the current terminal building to be removed/relocated.
- 3. A proposed larger aircraft apron due south of the proposed terminal building along the to-be-closed Runway 1-19.
- 4. Proposed auto parking west of the rehabilitated terminal building and south of West 23rd Street.
- 5. The current apron marked to accommodate small aircraft only.
- 6. An executive hangar area due south of the current terminal area.
- 7. Two proposed T-hangars due south of the proposed auto parking area.

4.2.2 Alternative No. 2

Alternative No. 2 shows:

- 1. A proposed terminal building and area between the current apron and the western-most hangar area.
- 2. A proposed larger aircraft apron due south of the proposed terminal building along the to-be-closed Runway 1-19.
- 3. Proposed auto parking between the proposed terminal building and West 23rd Street.
- 4. The current apron marked to accommodate small aircraft only.
- 5. An executive hangar area due south of the current terminal area
- 6. The current terminal building to be removed with a ground-leased hangar in its place.

4.2.3 Alternative No. 3

Alternative No. 3 shows:

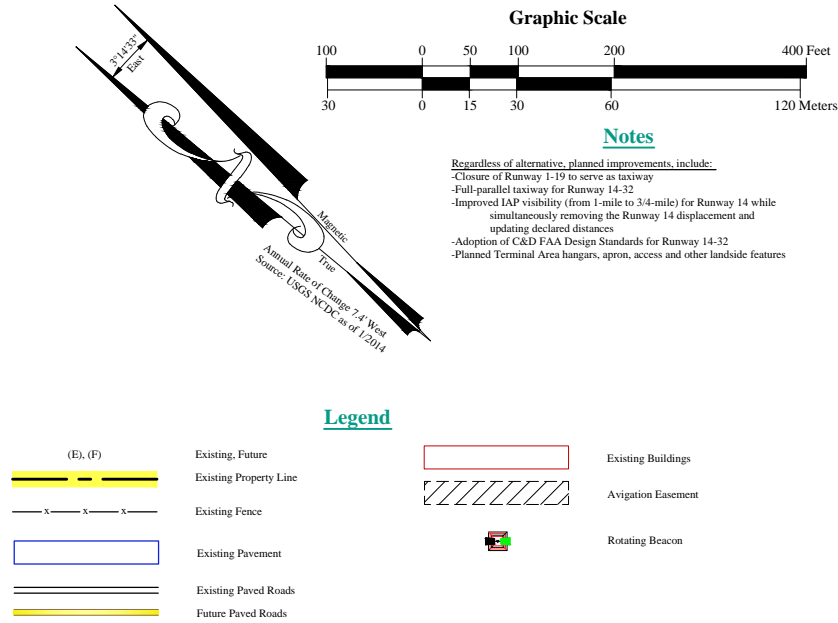
- 1. A proposed terminal building and area along Airport Road south of the current terminal area.
- 2. A proposed larger aircraft apron due west of the proposed terminal building area all the way to the to-be-closed Runway 1-19.
- 3. Proposed auto parking between the proposed terminal building and Airport Road.
- 4. The current apron marked to accommodate small aircraft only.
- 5. An executive hangar area due west of the current terminal area and south of West 23rd Street.
- 6. The current terminal building to be removed with a ground-leased hangar in its place.
- 7. Two proposed T-hangars due east of the proposed auto parking area.

4.2.4 Alternative No. 4

Alternative No. 4 shows:

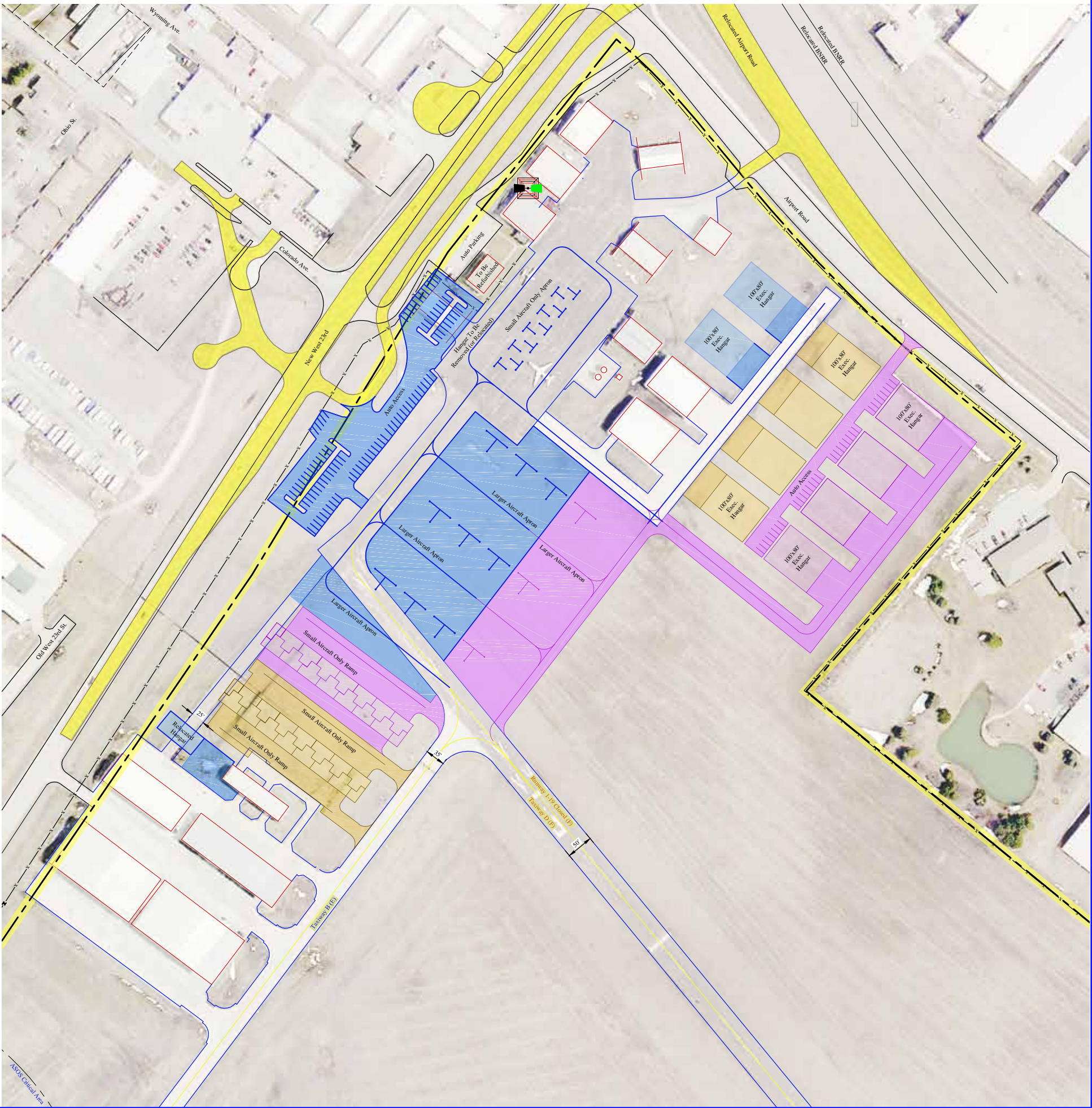
- 1. A proposed terminal building and area in a more traditional area along the Building Restriction Line near Runway 14-32.
- 2. A proposed larger aircraft apron, auto parking, and executive hangar area within this proposed terminal area
- 3. The current apron marked to accommodate small aircraft only.
- 4. A relocated segmented circle and lighted windcone.

Terminal Area Alternative No. 1
(Improve Existing Terminal Area)

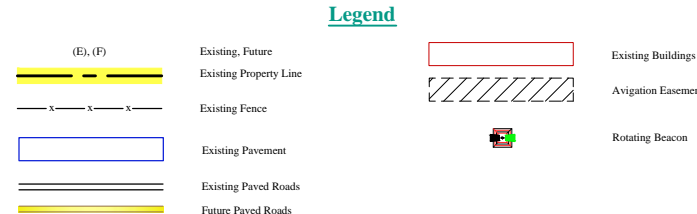
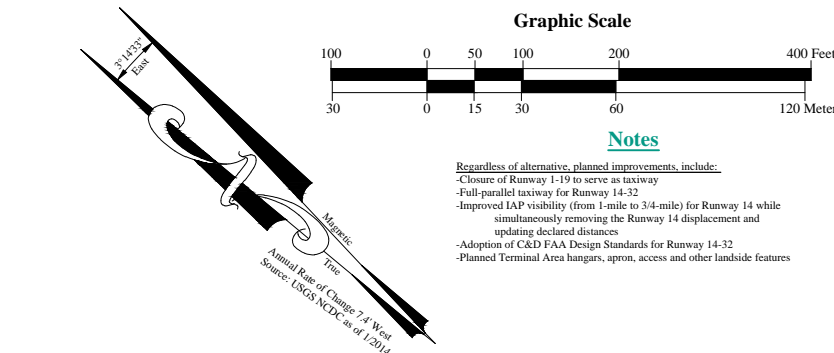


Alternative No. 1 Improvements					
Existing and Short-Term (Years 1-5) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$600,000	\$0	\$150,000	\$0	\$750,000
Terminal Apron	\$600,000	\$250,000	\$200,000	\$150,000	\$1,200,000
Auto Access/Parking	\$0	\$50,000	\$150,000	\$0	\$200,000
Access Taxiways	\$0	\$0	\$0	\$0	\$0
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$80,000	\$0	\$80,000
Sub-Totals:	\$1,200,000	\$350,000	\$580,000	\$150,000	\$2,230,000
Short-Term to Intermediate-Term (Years 6-10) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$125,000	\$0	\$15,000	\$0	\$140,000
T-Hangars	\$0	\$0	\$550,000	\$0	\$550,000
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$125,000	\$0	\$565,000	\$0	\$690,000
Intermediate-Term to Long-Term (Years 11-20) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$330,000	\$75,000	\$45,000	\$0	\$450,000
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$340,000	\$100,000	\$50,000	\$0	\$490,000
T-Hangars	\$0	\$0	\$550,000	\$0	\$550,000
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$670,000	\$175,000	\$645,000	\$0	\$1,490,000
GRAND TOTALS:	\$1,995,000	\$525,000	\$1,790,000	\$150,000	\$4,410,000

Note: Costs associated with box/executive hangar development are not prepared because ground leasing is planned, except eligible portions of access taxiways.

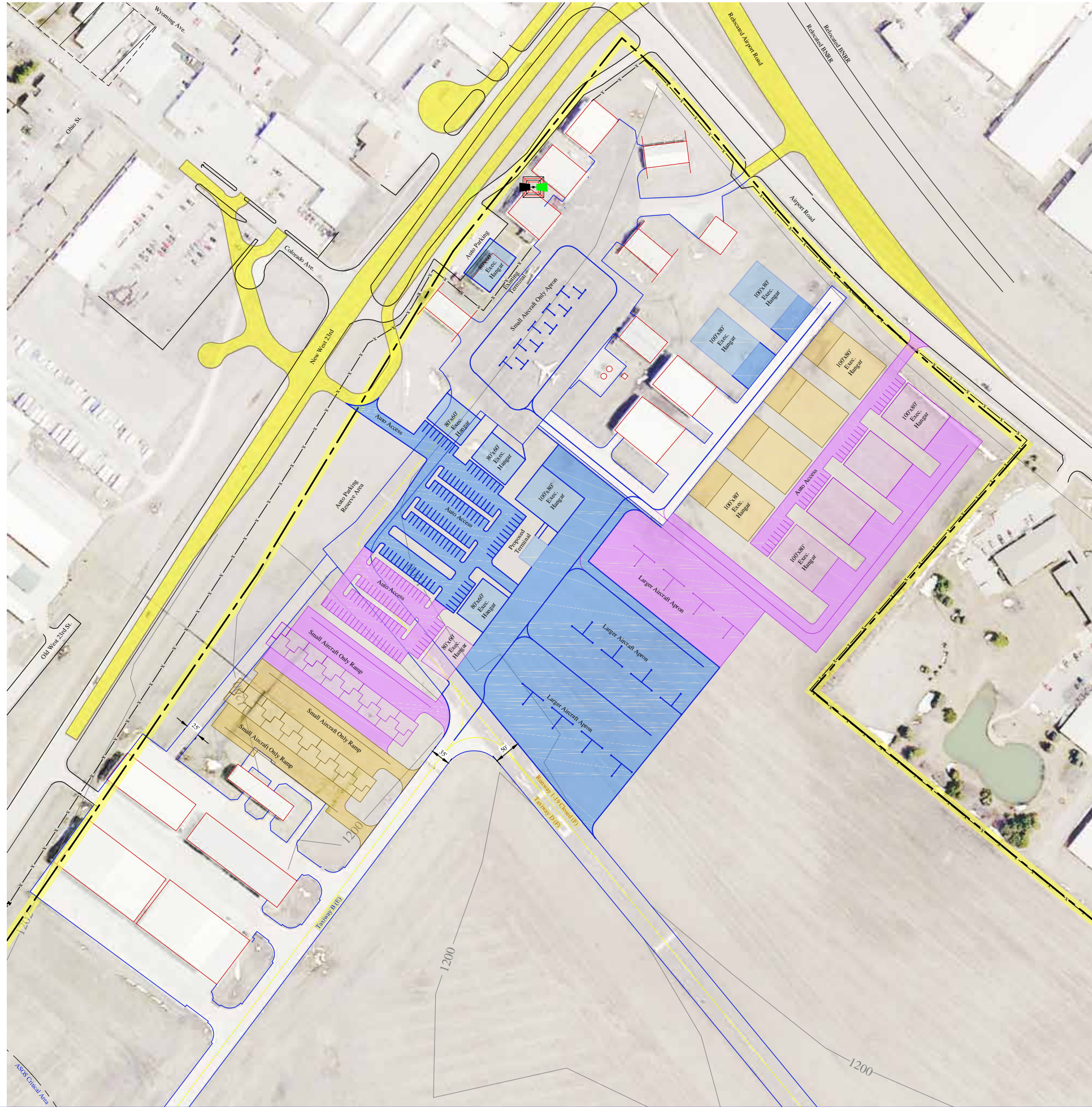


Terminal Area Alternative No. 2
(Develop Along West 23rd Street)



Alternative No. 2 Improvements					
Existing and Short-Term (Years 1-5) Improvements					
Terminal Building	FAA	NDA	City	Others	Totals
Terminal Apron	\$600,000	\$0	\$150,000	\$0	\$750,000
Auto Access/Parking	\$600,000	\$350,000	\$200,000	\$150,000	\$1,300,000
Access Taxiways	\$0	\$100,000	\$150,000	\$0	\$250,000
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$1,200,000	\$450,000	\$150,000	\$0	\$2,380,000
Short-Term to Intermediate-Term (Years 6-10) Improvements					
Terminal Building	FAA	NDA	City	Others	Totals
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$125,000	\$0	\$15,000	\$0	\$140,000
T-Hangars	\$0	\$0	\$550,000	\$0	\$550,000
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$125,000	\$0	\$565,000	\$0	\$690,000
Intermediate-Term to Long-Term (Years 11-20) Improvements					
Terminal Building	FAA	NDA	City	Others	Totals
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$280,000	\$75,000	\$30,000	\$0	\$385,000
Access Taxiways	\$0	\$0	\$115,000	\$0	\$115,000
T-Hangars	\$125,000	\$0	\$15,000	\$0	\$140,000
Utilities/Extensions	\$0	\$0	\$550,000	\$0	\$550,000
Sub-Totals:	\$405,000	\$75,000	\$710,000	\$0	\$1,190,000
GRAND TOTALS:	\$1,730,000	\$525,000	\$1,855,000	\$150,000	\$4,260,000

Note: Costs associated with box/executive hangar development are not prepared because ground leasing is planned.



Terminal Area
Alternative No. 2
(Along West 23rd St)

Exhibit:
A2
of VII Exhibits

Project No.: FET1437M
Designed By: SPM
Drawn By: MTP
Approved By: SPM
Date: February 2014

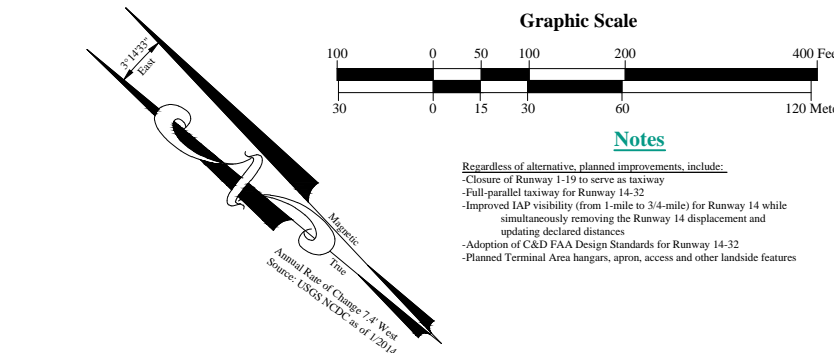
ADG DEVELOPMENT GROUP, LLC
1776 South Jackson Street / Suite 200
303.992.0862 / 303.782.0842 Fax
www.ADGairport.com

Fremont
Municipal Airport
City of Fremont, Nebraska

No. _____
Revision _____
Cld _____
Date _____

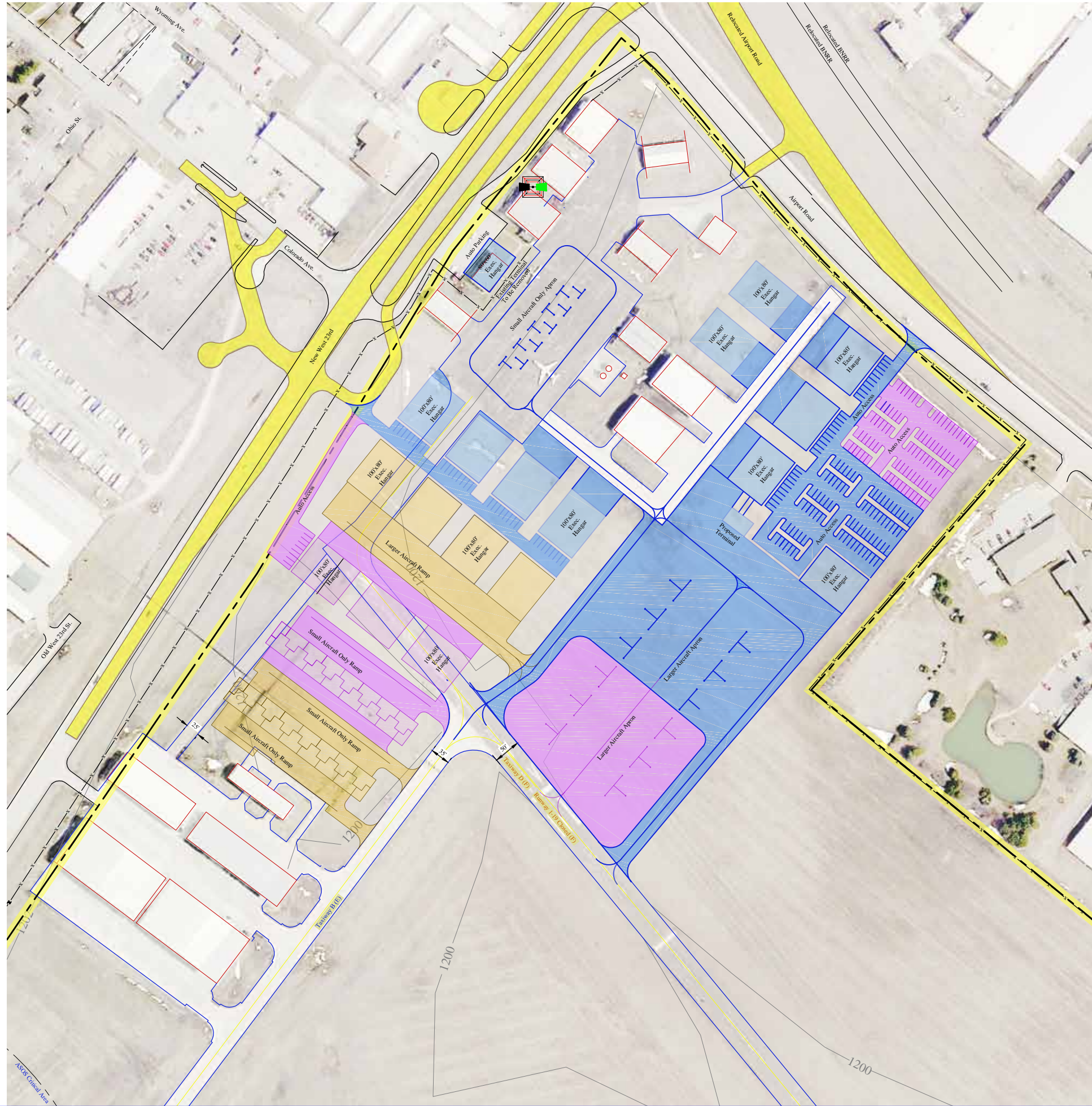
NDA Project Number:

Terminal Area Alternative No. 3
(Develop Along Airport Road)



Alternative No. 3 Improvements					
Existing and Short-Term (Years 1-5) Improvements					
Terminal Building	FAA	NDA	City	Others	Totals
Terminal Apron	\$600,000	\$0	\$150,000	\$0	\$750,000
Auto Access/Parking	\$800,000	\$350,000	\$200,000	\$150,000	\$1,500,000
Access Taxiways	\$0	\$100,000	\$150,000	\$0	\$250,000
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$80,000	\$0	\$80,000
Sub-Totals:	\$1,400,000	\$450,000	\$580,000	\$150,000	\$2,580,000
Short-Term to Intermediate-Term (Years 6-10) Improvements					
Terminal Building	FAA	NDA	City	Others	Totals
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$0	\$0	\$0	\$0	\$0
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$0	\$0	\$0	\$0	\$0
Intermediate-Term to Long-Term (Years 11-20) Improvements					
Terminal Building	FAA	NDA	City	Others	Totals
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$125,000	\$0	\$15,000	\$0	\$140,000
T-Hangars	\$0	\$0	\$550,000	\$0	\$550,000
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$125,000	\$0	\$565,000	\$0	\$690,000
Intermediate-Term to Long-Term (Years 11-20) Improvements					
Terminal Building	FAA	NDA	City	Others	Totals
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$605,000	\$100,000	\$80,000	\$0	\$785,000
Access Taxiways	\$0	\$0	\$160,000	\$0	\$160,000
T-Hangars	\$300,000	\$50,000	\$40,000	\$0	\$390,000
Utilities/Extensions	\$0	\$0	\$550,000	\$0	\$550,000
Sub-Totals:	\$905,000	\$200,000	\$830,000	\$0	\$1,935,000
GRAND TOTALS:	\$2,430,000	\$650,000	\$1,975,000	\$150,000	\$5,125,000

Note: Costs associated with box/executive hangar development are not prepared because ground leasing is planned, except eligible portions of access taxiways.



Terminal Area
Alternative No. 3
(Along Airport Road)

Exhibit:
A3
of VII Exhibits

Project No.: FET1437M
Designed By: SPM
Drawn By: MTP
Approved By: SPM
Date: February 2014

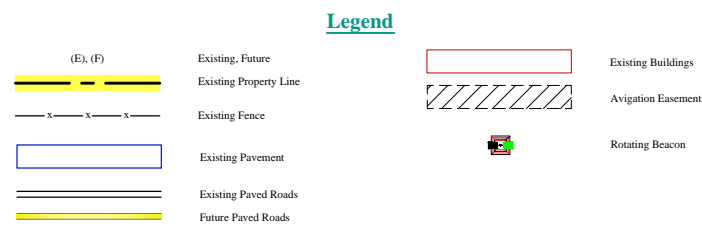
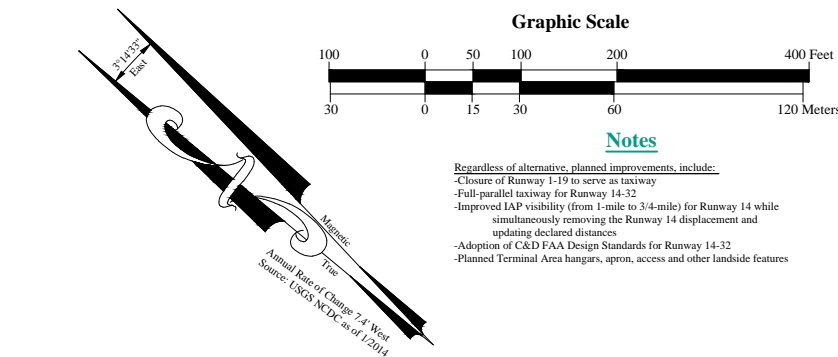
ADG DEVELOPMENT GROUP, LLC
1776 South Jackson Street / Suite 200
303.992.0862 / 303.782.0842 Fax
www.ADGairport.com

Fremont
Municipal Airport
City of Fremont, Nebraska

No. _____
Revision _____
Cld _____
Date _____

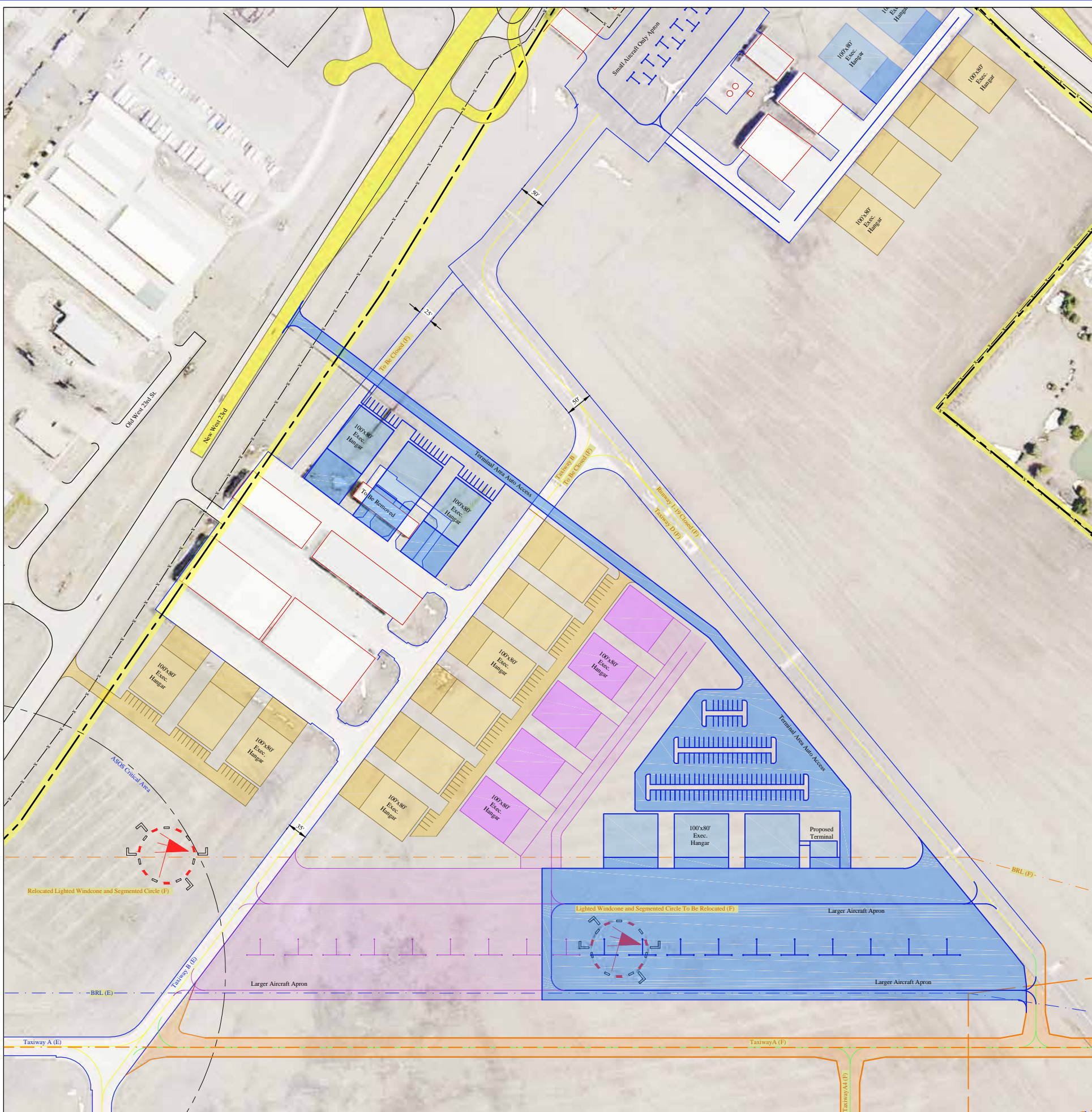
NDA Project Number:

Terminal Area Alternative No. 4 (Develop Along Runway 14-32)



Alternative No. 4 Improvements					
Existing and Short-Term (Years 1-5) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$600,000	\$0	\$150,000	\$0	\$750,000
Terminal Apron	\$720,000	\$450,000	\$280,000	\$150,000	\$1,600,000
Auto Access/Parking	\$0	\$200,000	\$450,000	\$0	\$650,000
Access Taxiways	\$0	\$0	\$0	\$0	\$0
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$190,000	\$0	\$190,000
Sub-Totals:	\$1,320,000	\$550,000	\$1,070,000	\$150,000	\$3,190,000
Short-Term to Intermediate-Term (Years 6-10) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$0	\$0	\$0	\$0	\$0
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$0	\$0	\$0	\$0	\$0
Intermediate-Term to Long-Term (Years 11-20) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$750,000	\$100,000	\$135,000	\$0	\$985,000
Auto Access/Parking	\$0	\$0	\$115,000	\$0	\$115,000
Access Taxiways	\$180,000	\$100,000	\$30,000	\$0	\$280,000
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$930,000	\$200,000	\$280,000	\$0	\$1,380,000
GRAND TOTALS:	\$2,250,000	\$750,000	\$1,350,000	\$150,000	\$4,570,000

Note: Costs associated with box/executive hangar development are not prepared because ground leasing is planned, except eligible portions of access taxiways.



Terminal Area Alternative No. 4 (Develop Along Runway 14-32)

A4
of VII Exhibits



ADG

**AIRPORT
DEVELOPMENT
GROUP PC**

1776 South Jackson Street / Suite 2002
 Denver, Colorado 80210-3802
 303.782.0682 / 303.782.0642 fax
www.ADGairports.com

Project No.: FET1437M

Designed By: SPM

Drawn By: MTP

Approved By: SPM

Date: February, 2014

NDA Project Number:

Fremont
Municipal Airport
City of Fremont, Nebraska

[illegible]

5.0 UPDATED AIRPORT LAYOUT PLAN AND TERMINAL AREA PLAN

This final section describes and depicts the necessary improvements derived from landside facility requirements and alternatives section and shows airport features, not limited to existing airfield and landside configurations, future developments, airport airspace, land uses and other planned development.

The Airport Layout Plan (ALP) is a scaled graphic representation of existing and proposed airport development including pertinent clearance and dimensional information required to show conformance with design standards.

The ALP is a legal document and represents an agreement between FAA, NDA and the City. This agreement primarily concerns design standards compliance, future development locations and obstruction disposition. On-airport development must be depicted on the ALP and it should be kept reasonably current. A reduced-size ALP along with and other drawings can be found at the end of this chapter.

The ALP depicts the City Council-specified location of facilities proposed to accommodate the 20-year demand (and beyond) as discussed in the preceding sections and synthesized through the planning process. These include the five improvements and actions from during previous planning as identified on page 13.

The data table provides basic information concerning airport elevation, airport reference point location, airport land ownership, etc. The Runway Data tables provide information such as airport role, approach surface information and end coordinates/elevations. A scale, legend, and north arrow orient the reader.

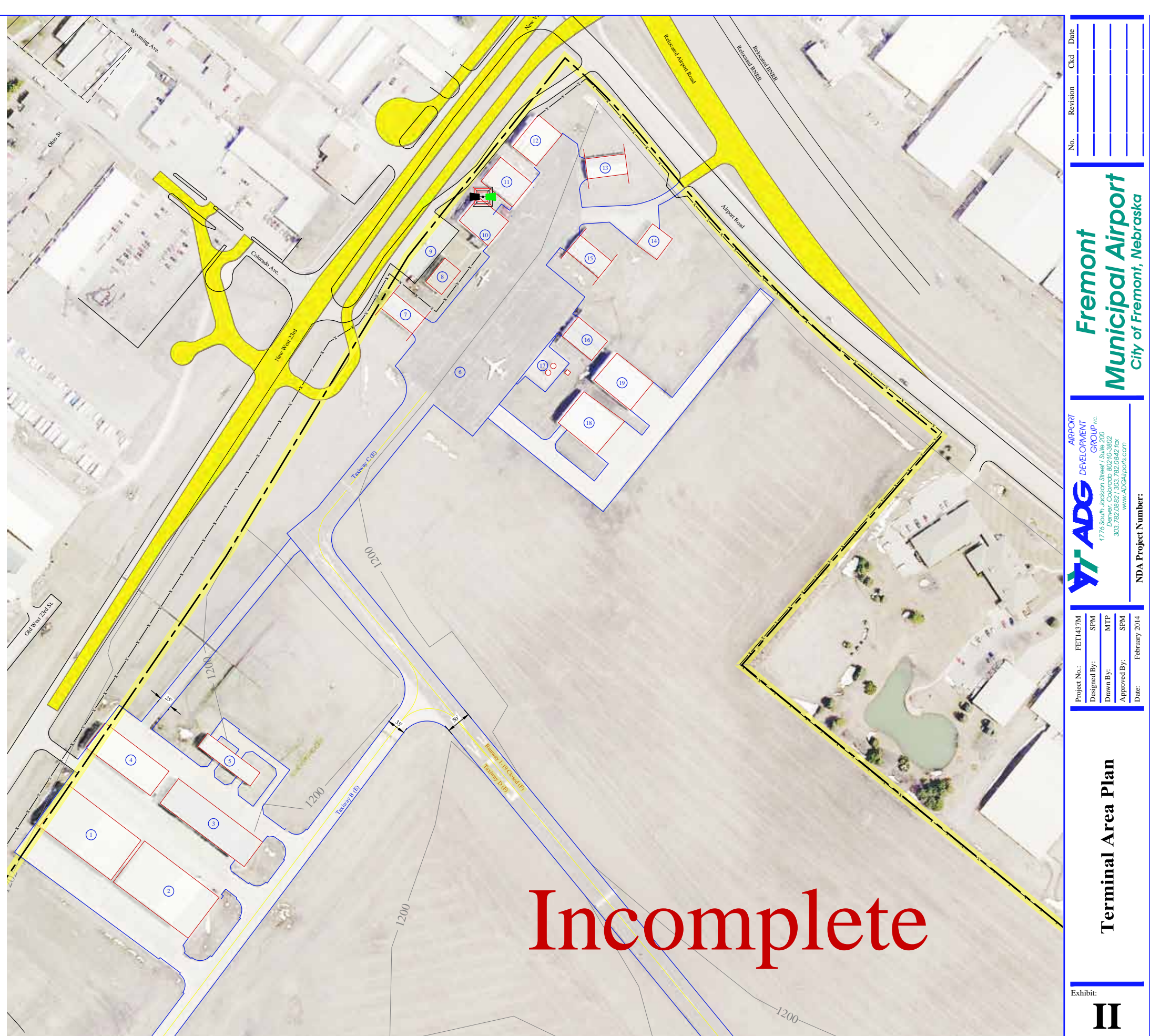
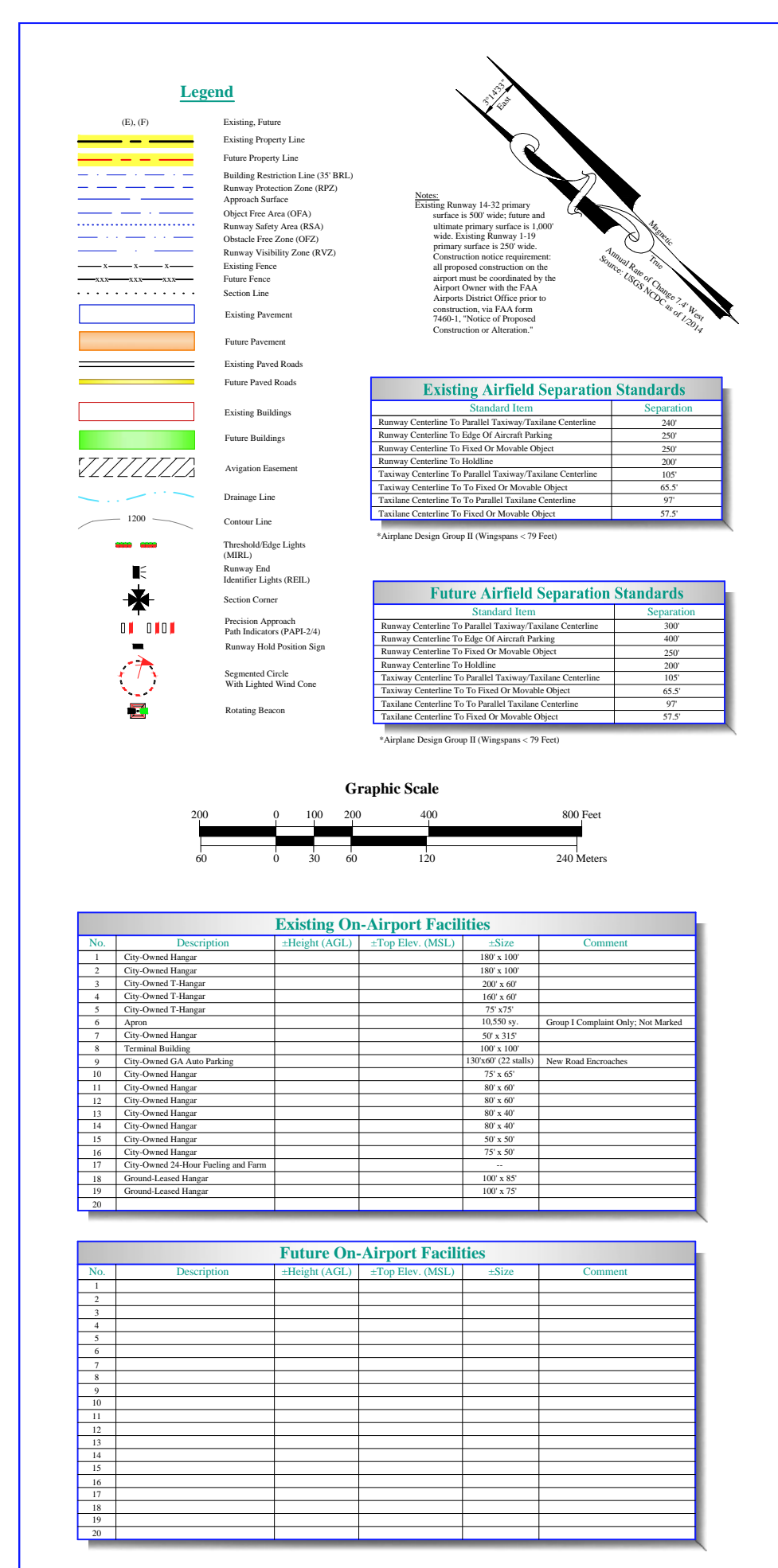
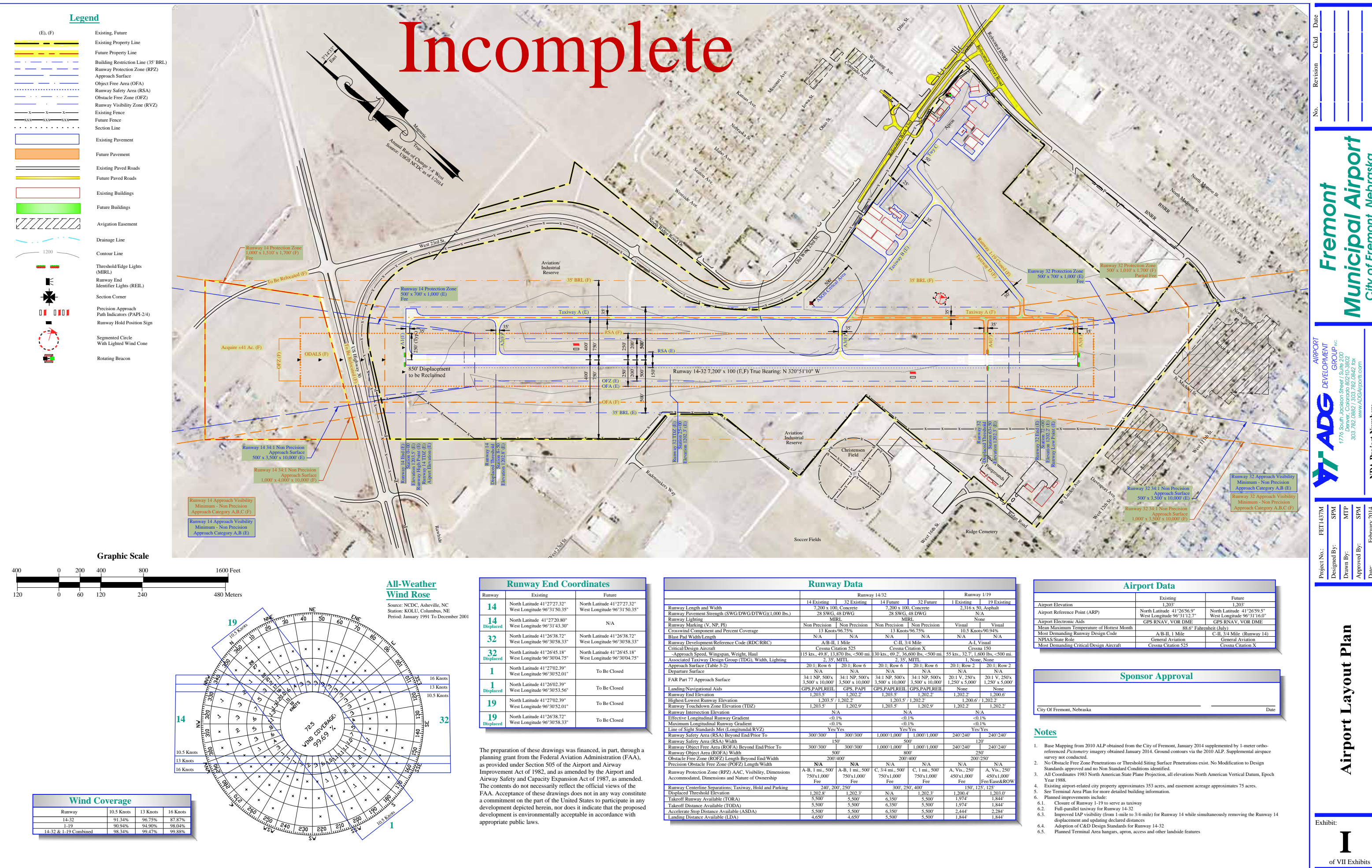
While the single-sheet ALP drawing shows most airport-related features, the terminal area plan

shows closer in features at 1"=100' scale. A number of changes are depicted on the Terminal Area Plan for FET. City and potential private hangar developments are planned for the short, intermediate and long-term, as well as a phased expansion of the existing hangar area. This general aviation area includes phased development for apron, hangar and other aviation facilities.

Phased facility construction, utility extension, landscaping, auto access and parking area are planned. Improvements should be constructed as funding and demand allows and are planned to accommodate the expected activity. The proposed size and location in this regard are for planning purposes only and specific plans should be evaluated on a case-by-case basis for general conformance to the ALP.

The updated ALP and Terminal Area Plan exhibits follow.

More to follow...



APPENDIX A
PRESENTATIONS





About ADG

ADG Team:

Steve Marshall and Rick Bryant

- ADG has worked with communities in the state of Nebraska since 1989
- ADG is a professional aviation consultancy in business since 1984
- ADG has completed 82 planning projects in 12 states with strong similarities to this effort



Plan Participants and Roles

-City Council

Consultation and decision-making

-Fremont Public and Aviation Constituencies

Consultation planned to inform and seek comment

-Airport Advisory Committee

Consultation at key project points, makes recommendation to City Council

-Nebraska Aeronautics and FAA

Will advise on project documents and consult at key project points. FAA will be asked for comment and may 'airspace' the final plan





Project Schedule

-Project Meeting No. 1: Last Month

Introduce the Project to Committee, Preview an Alternative

-Project Meeting No. 2: Tonight

Introduce the Project, Present the Alternatives, Discuss and Seek Direction from Council

-Final City Council Presentation: Perhaps April

Brief the Project, Brief the Alternatives, Confirm Direction from Council, Finalize the Planning



Planning Objectives

- Provide terminal area planning that is able to safely and effectively accommodate demand, should it materialize
- Provide terminal area planning with development suited to a 'highest and best' use



What this work is about...

- Functions as a phased (5, 10 and 20 year) development 'road map' to accommodate anticipated demand as Council sees fit
- Does not obligate development or dollars, but may set the ground work for future funding... *the beginning of the conversation*



Why is this work being done...

- The upcoming West 23rd Street Viaduct may constrain the terminal building's auto parking
- A waitlist for hangars exists and new hangar and apron area should be planned
- The current terminal building has aged and is perhaps past its useful life without rehabilitation
- FAA and NDA encourage a review and update of FET's planning every so often



What is being done...

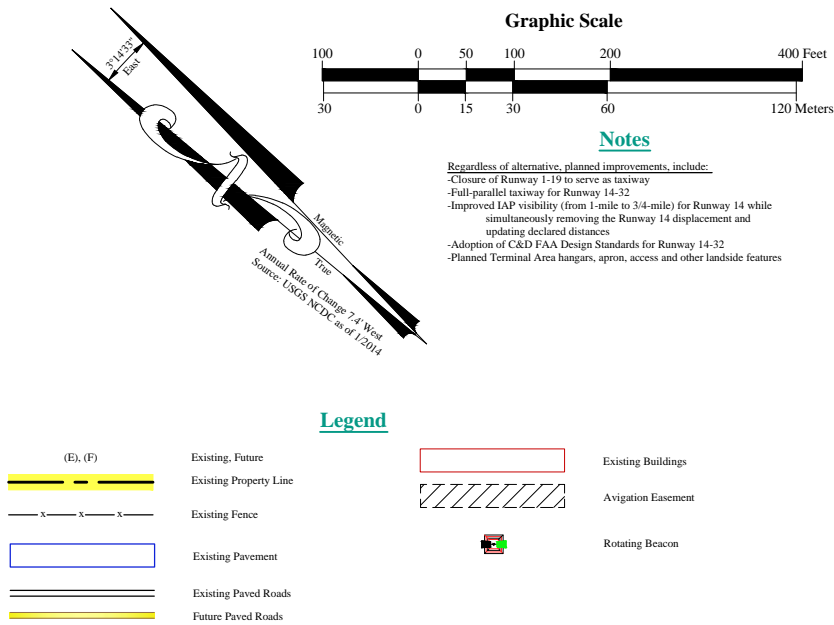
Project Focus: Four Alternatives

- Phased development (5, 10 and 20-year periods)
- Visualization of hangars, buildings, apron, auto parking, taxiways and other aviation facilities
- Planning level cost estimates for each phase

- Alternative No. 1: Improve Existing Terminal Area
- Alternative No. 2: Develop Along West 23rd St.
- Alternative No. 3: Develop Along Airport Road
- Alternative No. 4: Develop Along Runway 14-32

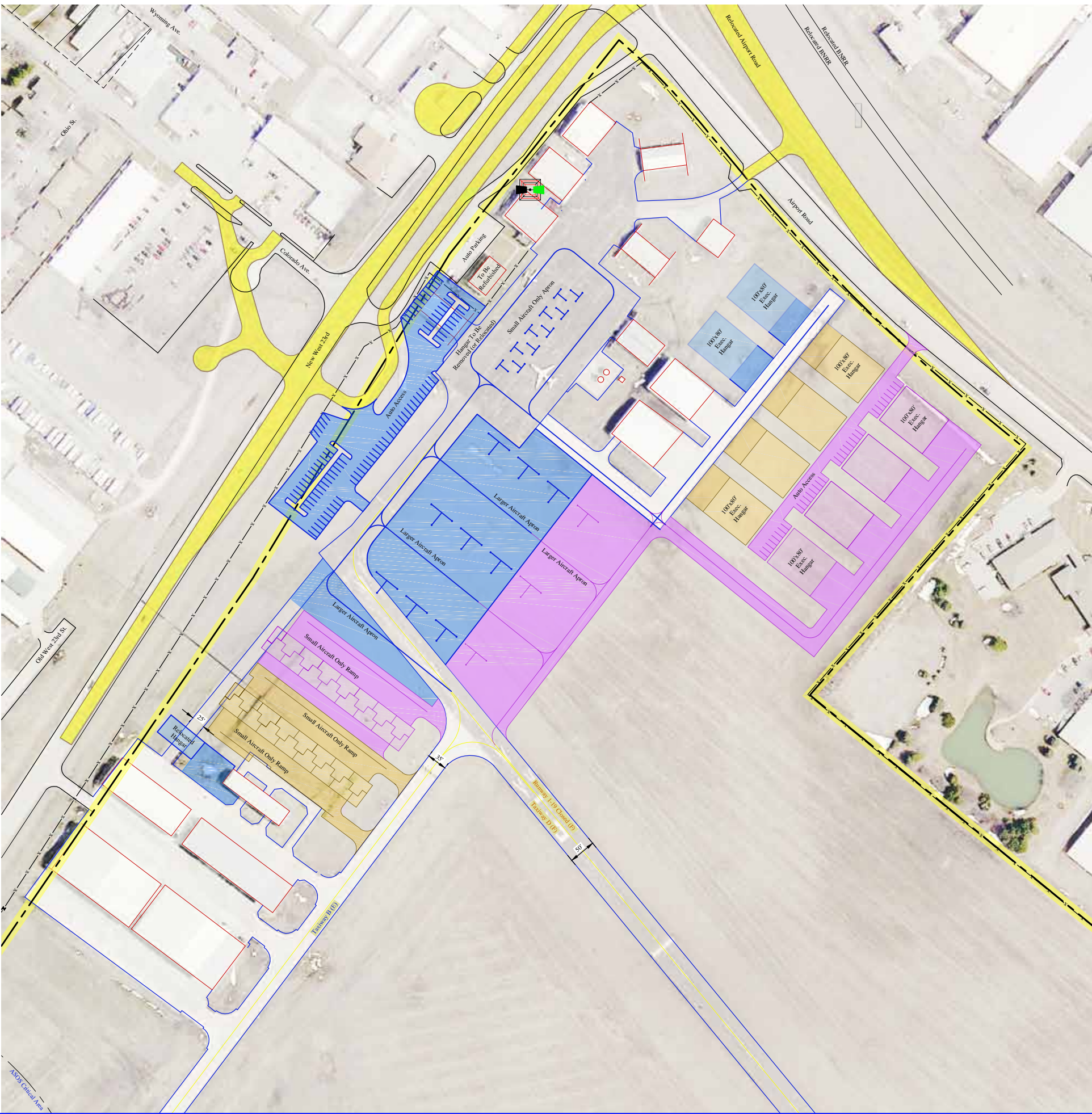


Terminal Area Alternative No. 1 (Improve Existing Terminal Area)



Alternative No. 1 Improvements					
Existing and Short-Term (Years 1-5) Improvements					
Terminal Building	FAA \$600,000	NDA \$0	City \$150,000	Others \$0	Totals \$750,000
Terminal Apron	\$600,000	\$250,000	\$200,000	\$150,000	\$1,200,000
Auto Access/Parking	\$0	\$50,000	\$150,000	\$0	\$200,000
Access Taxiways	\$0	\$0	\$0	\$0	\$0
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$80,000	\$0	\$80,000
Sub-Totals:	\$1,200,000	\$350,000	\$580,000	\$150,000	\$2,230,000
Short-Term to Intermediate-Term (Years 6-10) Improvements					
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$125,000	\$0	\$15,000	\$0	\$140,000
T-Hangars	\$0	\$0	\$550,000	\$0	\$550,000
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$125,000	\$0	\$565,000	\$0	\$690,000
Intermediate-Term to Long-Term (Years 11-20) Improvements					
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$330,000	\$75,000	\$45,000	\$0	\$450,000
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$340,000	\$100,000	\$50,000	\$0	\$490,000
T-Hangars	\$0	\$0	\$550,000	\$0	\$550,000
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$670,000	\$175,000	\$645,000	\$0	\$1,490,000
GRAND TOTALS:	\$1,995,000	\$525,000	\$1,790,000	\$150,000	\$4,410,000

Note: Costs associated with box/executive hangar development are not prepared because ground leasing is planned, except eligible portions of access taxiways.



Terminal Area
Alternative No. 1
(Improve Existing
Terminal Area)

Exhibit:
A1
of VII Exhibits

Project No.: FET1437M
Designed By: SPM
Drawn By: MTP
Approved By: SPM
Date: February 2014

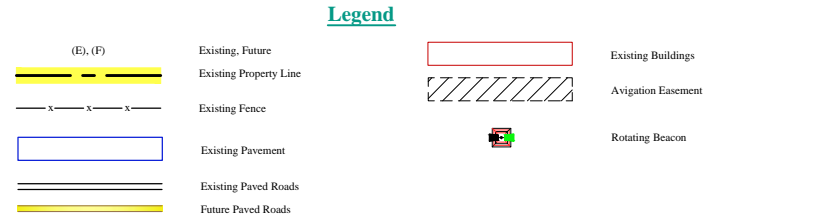
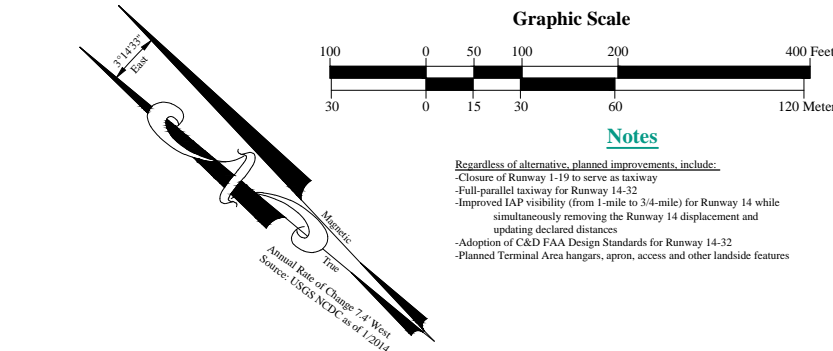
ADG DEVELOPMENT GROUP, LLC
1716 South Edison Street, Suite 200
Omaha, NE 68102
303.782.0882 / 303.782.0842 Fax
www.adgairport.com

ADG AIRPORT
Fremont
Municipal Airport
City of Fremont, Nebraska

NDA Project Number:

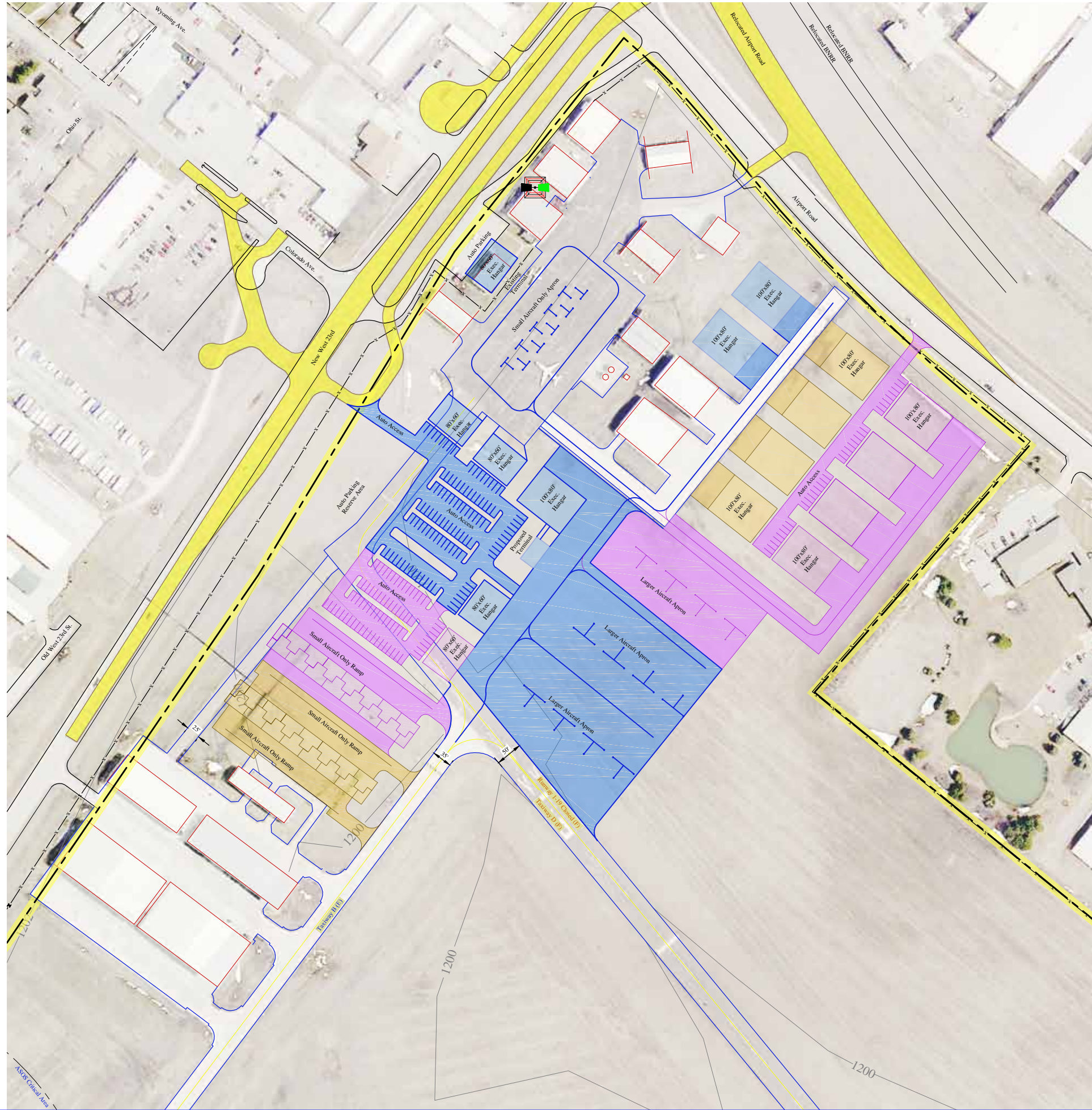
No. _____
Revision _____
Cld _____
Date _____

Terminal Area Alternative No. 2
(Develop Along West 23rd Street)



Alternative No. 2 Improvements					
Existing and Short-Term (Years 1-5) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$600,000	\$0	\$150,000	\$0	\$750,000
Terminal Apron	\$600,000	\$350,000	\$200,000	\$150,000	\$1,300,000
Auto Access/Parking	\$0	\$100,000	\$150,000	\$0	\$250,000
Access Taxiways	\$0	\$0	\$0	\$0	\$0
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$80,000	\$0	\$80,000
Sub-Totals:	\$1,200,000	\$450,000	\$580,000	\$150,000	\$2,380,000
Short-Term to Intermediate-Term (Years 6-10) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$125,000	\$0	\$15,000	\$0	\$140,000
T-Hangars	\$0	\$0	\$550,000	\$0	\$550,000
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$125,000	\$0	\$565,000	\$0	\$690,000
Intermediate-Term to Long-Term (Years 11-20) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$280,000	\$75,000	\$30,000	\$0	\$385,000
Auto Access/Parking	\$0	\$0	\$115,000	\$0	\$115,000
Access Taxiways	\$125,000	\$0	\$15,000	\$0	\$140,000
T-Hangars	\$0	\$0	\$550,000	\$0	\$550,000
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$405,000	\$75,000	\$710,000	\$0	\$1,190,000
GRAND TOTALS:	\$1,730,000	\$525,000	\$1,855,000	\$150,000	\$4,260,000

Note: Costs associated with box/executive hangar development are not prepared because ground leasing is planned.



Project No.: FE1147M
Designed By: SWP
Drawn By: MTP
Approved By: SWP
Date: February 2018

Exhibit:
A2
of VII Exhibits

Terminal Area
Alternative No. 2
(Along West 23rd St)

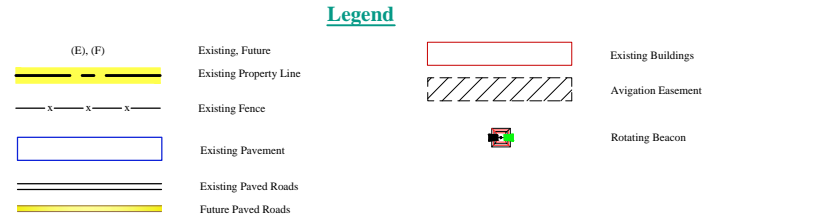
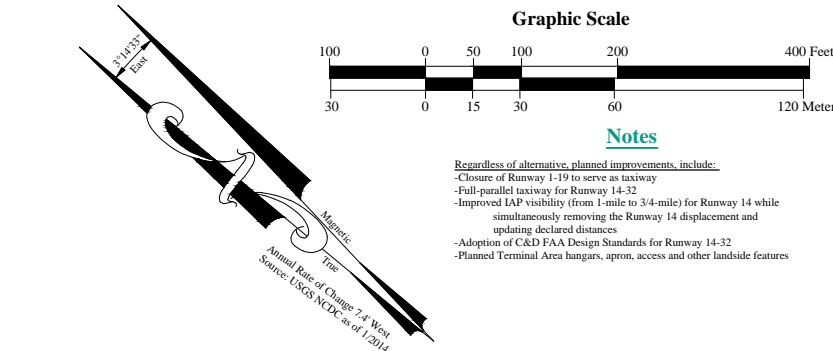
APPORT DEVELOPMENT, Inc.
1775 South Jackson Street, Suite 200
302.782.0632 / 302.782.0642 for
www.FCSairport.com

Fremont
Municipal Airport
City of Fremont, Nebraska

No. _____
Revision _____
Cdd _____
Date _____

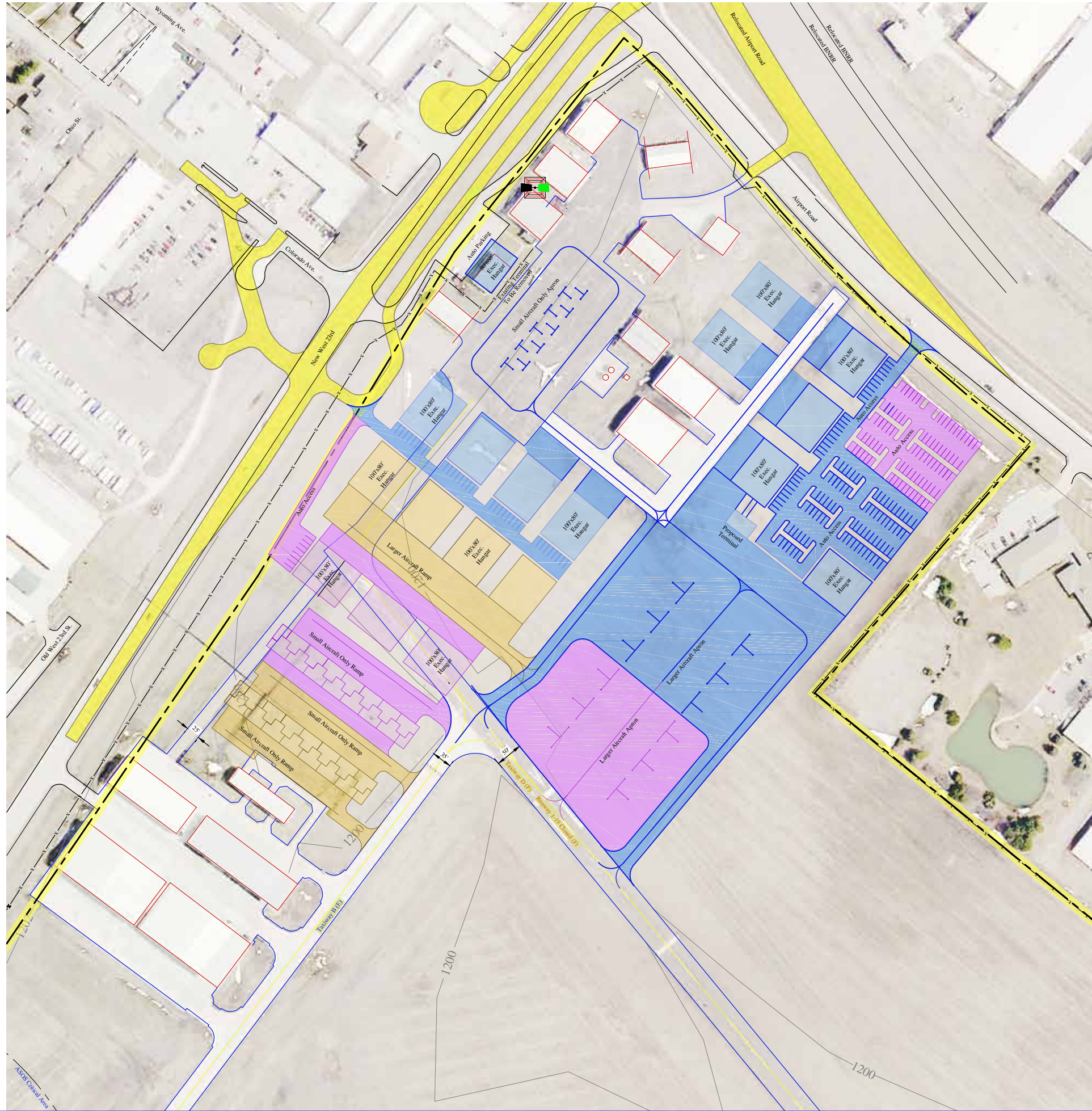
NDA Project Number:

Terminal Area Alternative No. 3
(Develop Along Airport Road)



Alternative No. 3 Improvements					
Existing and Short-Term (Years 1-5) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$600,000	\$0	\$150,000	\$0	\$750,000
Terminal Apron	\$800,000	\$350,000	\$200,000	\$150,000	\$1,500,000
Auto Access/Parking	\$0	\$100,000	\$150,000	\$0	\$250,000
Access Taxiways	\$0	\$0	\$0	\$0	\$0
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$80,000	\$0	\$80,000
Sub-Totals:	\$1,400,000	\$450,000	\$580,000	\$150,000	\$2,580,000
Short-Term to Intermediate-Term (Years 6-10) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$125,000	\$0	\$15,000	\$0	\$140,000
T-Hangars	\$0	\$0	\$550,000	\$0	\$550,000
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$125,000	\$0	\$565,000	\$0	\$690,000
Intermediate-Term to Long-Term (Years 11-20) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$605,000	\$100,000	\$80,000	\$0	\$785,000
Auto Access/Parking	\$0	\$50,000	\$160,000	\$0	\$210,000
Access Taxiways	\$300,000	\$50,000	\$40,000	\$0	\$390,000
T-Hangars	\$0	\$0	\$550,000	\$0	\$550,000
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$905,000	\$200,000	\$830,000	\$0	\$1,935,000
GRAND TOTALS:	\$2,430,000	\$650,000	\$1,975,000	\$150,000	\$5,125,000

Note: Costs associated with box/executive hangar development are not prepared because ground leasing is planned, except eligible portions of access taxiways.



Project No.: FE1147M
Designed By: SWP
Drawn By: MTP
Approved By: SWP
Date: February 2018

Exhibit:
A3
of VII Exhibits

Terminal Area
Alternative No. 3
(Along Airport Road)

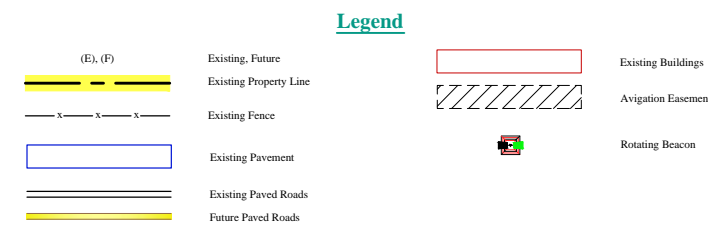
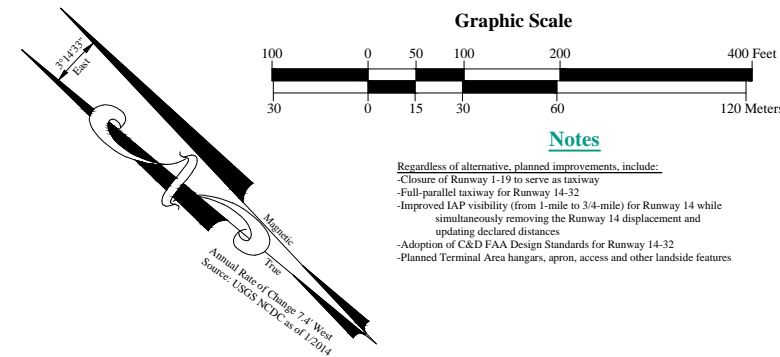
APPORT DEVELOPMENT, Inc.
1775 South Jackson Street, Suite 200
302.782.0632 / 302.782.0642 for
www.FCSairport.com

Fremont
Municipal Airport
City of Fremont, Nebraska

No. _____
Revision _____
Cdd _____
Date _____

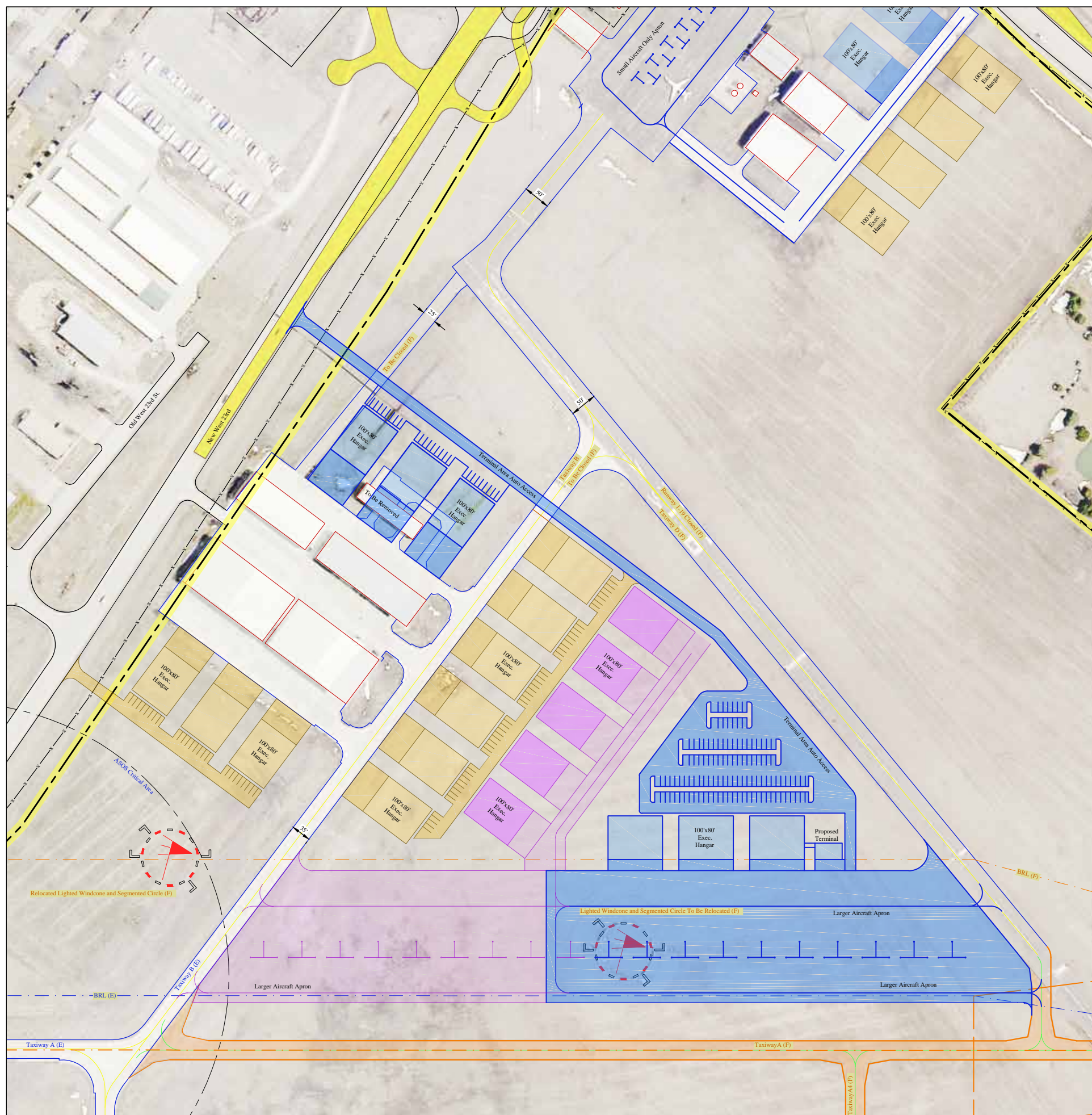
NDA Project Number:

Terminal Area Alternative No. 4 (Develop Along Runway 14-32)



Alternative No. 4 Improvements					
Existing and Short-Term (Years 1-5) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$600,000	\$0	\$150,000	\$0	\$750,000
Terminal Apron	\$720,000	\$450,000	\$280,000	\$150,000	\$1,600,000
Auto Access/Parking	\$0	\$200,000	\$450,000	\$0	\$650,000
Access Taxiways	\$0	\$0	\$0	\$0	\$0
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$190,000	\$0	\$190,000
Sub-Totals:	\$1,320,000	\$550,000	\$1,070,000	\$150,000	\$3,190,000
Short-Term to Intermediate-Term (Years 6-10) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$0	\$0	\$0	\$0	\$0
Auto Access/Parking	\$0	\$0	\$0	\$0	\$0
Access Taxiways	\$0	\$0	\$0	\$0	\$0
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$0	\$0	\$0	\$0	\$0
Intermediate-Term to Long-Term (Years 11-20) Improvements					
	FAA	NDA	City	Others	Totals
Terminal Building	\$0	\$0	\$0	\$0	\$0
Terminal Apron	\$750,000	\$100,000	\$135,000	\$0	\$985,000
Auto Access/Parking	\$0	\$0	\$115,000	\$0	\$115,000
Access Taxiways	\$180,000	\$100,000	\$30,000	\$0	\$280,000
T-Hangars	\$0	\$0	\$0	\$0	\$0
Utilities/Extensions	\$0	\$0	\$0	\$0	\$0
Sub-Totals:	\$930,000	\$200,000	\$280,000	\$0	\$1,380,000
GRAND TOTALS:	\$2,250,000	\$750,000	\$1,350,000	\$150,000	\$4,570,000

Note: Costs associated with box/executive hangar development are not prepared because ground leasing is planned, except eligible portions of access taxiways.



Terminal Area Alternative No. 4 (Develop Along Runway 14-32)

Exhibit:

A4

of VII Exhibits

ADG AIRPORT
DEVELOPMENT
GROUP INC.
1776 South Jackson Street / Suite 200
Denver, Colorado 80210-3802
303.782.0882 / 303.782.0842 fax
www.ADGairports.com

Project No.:	FET1437M
Designed By:	SPM
Drawn By:	MTP
Approved By:	SPM

ADG
1776 South Jackson
Denver, CO
303.782.0882 / www.adg.com

**Fremont
Municipal Airport**
City of Fremont, Nebraska

No.	Revision	Ckd	Date



And who pays for all this...

- This planning will be 90% reimbursed by FAA
 - FET is 'entitled' to an annual \$150,000, more than that is FAA/NDA prerogative
- On-The Ground Improvements:
- Apron, Taxiway and Taxilanes are eligible for 90% FAA grants.
 - Terminal Buildings are sometimes eligible for 90% FAA grants.
 - Hangar and T-Hangars are generally not eligible for 90% FAA grants.
 - \$600,000± 'in FAA's bank for FET'



For Our Next Meeting...

- ADG will coordinate with Advisory Committee
- ADG will schedule Project Meeting No. 3 for April
- ADG will coordinate with FAA/NDA
- ADG will summarize the survey
- We look forward to meeting with you again
- Please ask questions



APPENDIX B

ARCHITECTURAL REPORT FOR EXISTING TERMINAL BUILDING



Fremont Municipal Airport

Terminal Building Report

HGM Project No. 103214
March 10, 2014

Fremont Municipal Airport

Building Report

HGM Project No. 103214
March 10, 2014

EXISTING FACILITY

The existing Fremont Airport Terminal was established in 1947. The terminal building was constructed in 1962. (See Photos 1 and 2)

The entrance to the terminal is somewhat hidden and isolated from view from the parking lot and as visitors approach the airport. (See Photo 3)

The building is constructed of masonry load bearing walls that are uninsulated. The roof is a pre-cast concrete inverted T system. The masonry walls and roof structure appear to be stable and solid, but there is moisture damage on the north side of the building. (See Photo P4)

The windows are old, deteriorating and not energy efficient. (See Photo P5)

The buildings' roof is old and reached the end of its useful life and should be replaced. (See Photo P7). This sloping roof surface is difficult and problematic to re-roof. Also there are cracks developing with the concrete roof system. (See Photo P6)

A new lay in ceiling was updated and installed in 1985 with insulation added above the lay in ceiling. This is not a suggested way of insulating the ceiling. It makes access to wiring, lights, etc. difficult.

Carpet was recently replaced and is in good shape.

The reception area is cramped and is open to the lobby with a lack of privacy for phone calls and other work. (See Photo P8)

The existing FBO office is cramped with no view of the lobby and minimal view of the apron and runway. (See Photo P9)

The lobby is comfortable with plenty of seating for guests and visitors. (See Photo P10)

There is only one large room which serves as a combination conference room, flight planning area, and break room. There is no privacy area for pilots to plan flights. There is no sink for water. There is no private meeting or training room that could be used for press conferences, political rallies, meetings or training sessions. (See Photo P11)

There are no sleeping rooms or privacy areas for pilots to sleep or take a break when they are waiting for flights. Currently they sleep in the lobby area.

Storage is lacking throughout the facility. Some storage is handled in the mechanical room which is a safety issue. (See Photo P12 and P13)

The drinking fountain appears to not meet current ADA standards and electrical cords provide a safety issue. (See Photo P14)

Photo P15 shows vending machines located where visitors enter the terminal restricting space.

The restrooms are small and not ADA compliant. (See Photo P16)

TERMINAL IMPROVEMENTS

To better facilitate visitors and provide a more helpful work area for the receptionist a glass separation wall should be included between the lobby and the receptionist work area. A drop box for loaner vehicles would be nice and a dedicated security monitor would be preferred. More file storage and a more efficient work area is needed in the reception area.

FBO OFFICE

The FBO office should have visibility of the lobby, receptionist and taxiway. More file storage is needed and a security system should be provided to monitor activities.

FLIGHT PLANNING AREA

A dedicated area should be provided for pilots to plan their flights with a regional map, access to telephone, internet access, and a view of the runway.

TRAINING ROOM

There should be a dedicated training area for use by staff. It could also be used as a conference room or political rally room if needed.

BREAK ROOM

A separate break room should be provided for staff and visitors to use.

SLEEPING ROOM

Probably two private sleeping rooms should be included in the new terminal facility with access to toilets and showers with TV’s and a lounging area accessible to pilots 24 hours a day.

MECHANICAL SYSTEM

The HVAC system is comprised of a natural gas fired furnace with condensing unit. The Whirlpool furnace is original to the building and is at the end of its useful life per 2007 ASHRAE Handbook – HVAC Applications, Table 4, page 36.3. The Ruud outdoor condensing, model RAKA, has been replaced since the original system, but information on the unit was not available on site. The system has a single White-Rodgers thermostat for the entire building. The thermostat did not appear to be 7-day programmable to meet current energy codes. The HVAC system does not have outdoor air, which is a violation of ASHRAE Standard 62.1, and the International Mechanical Code. The supply ductwork for the HVAC system is installed below the floor slab, and some sections of this ductwork are collapsed, or have required

heavy maintenance in the past. Without access to the supply ductwork, required maintenance cannot be completed. Each restroom has a wall fan exhauster that is original to the building.

The plumbing system is comprised of a ¾” water service which supplies water to the two (2) restrooms, a service sink, a drinking fountain, a refrigerator ice maker, and the lawn sprinkler system. The cold water piping is expanded to 1” or larger once it enters the building at the Mechanical closet, likely in an attempt to accommodate the lack of pressure required in the building. The building operator reports that if the lawn sprinkler system is operating, the toilets in the restrooms will not flush. The water service size is inadequate and must be redone to accommodate plumbing code. The domestic water heater is an A.O. Smith, 30 gallon, and is not original to the building, but appears to be at the end of its useful life. The restroom plumbing fixtures appear to meet ADA requirements. The drinking fountain in the main corridor does not meet ADA requirements.

ELECTRICAL

The existing electrical system is 120/240V, 1-phase with a 100A main circuit breaker on the exterior of the building. There is a 100A main lug only branch circuit panel located in the mechanical room. The panel is an obsolete ITE Pushmatic type panel. For any future renovations a new electrical service will be required including larger service to the building and new branch circuit panelboard(s).

The existing lighting system throughout uses T12 linear fluorescent fixtures. There does not appear to be any emergency egress lighting or exit lighting. New energy efficient lighting will need to be provided throughout to meet State Energy Codes, including lighting controls. New LED type exit lighting and emergency egress will need to be provided throughout including outside all exterior egress doors.

The existing receptacles are grounded type, however they are minimal and not in a quantity that would meet current needs. Most outlets are recessed in blocks walls which will make it difficult to extend, with the use of surface mounted raceway. Light switches throughout are installed above height allowed by ADA.

There is an existing CCTV system which appears to be newer and in good condition.

The existing telephone entrance is in the mechanical room adjacent to the panelboard.

SUMMARY

The existing terminal is too small for current needs, is not easily expandable and the structure has several integral issues that might warrant its replacement and possible relocation to a better location to serve the public and the airport.



Photo #1 – Overall view of terminal area



Photo #3 – Terminal entrance
not visible from parking



Photo #2 – Terminal building



Photo #4 – Moisture issues



Photo #5 – Deteriorated windows and moisture issues



Photo #7 – Worn out built up roof system



Photo #6 – Cracked, deteriorated concrete roof



Photo #8 – Cramped reception area



Photo #9 – Cramped FBO Office



Photo #11 – Breakroom/training room/
conference room



Photo #10 - Lobby



Photo #12 – Storage in mechanical room

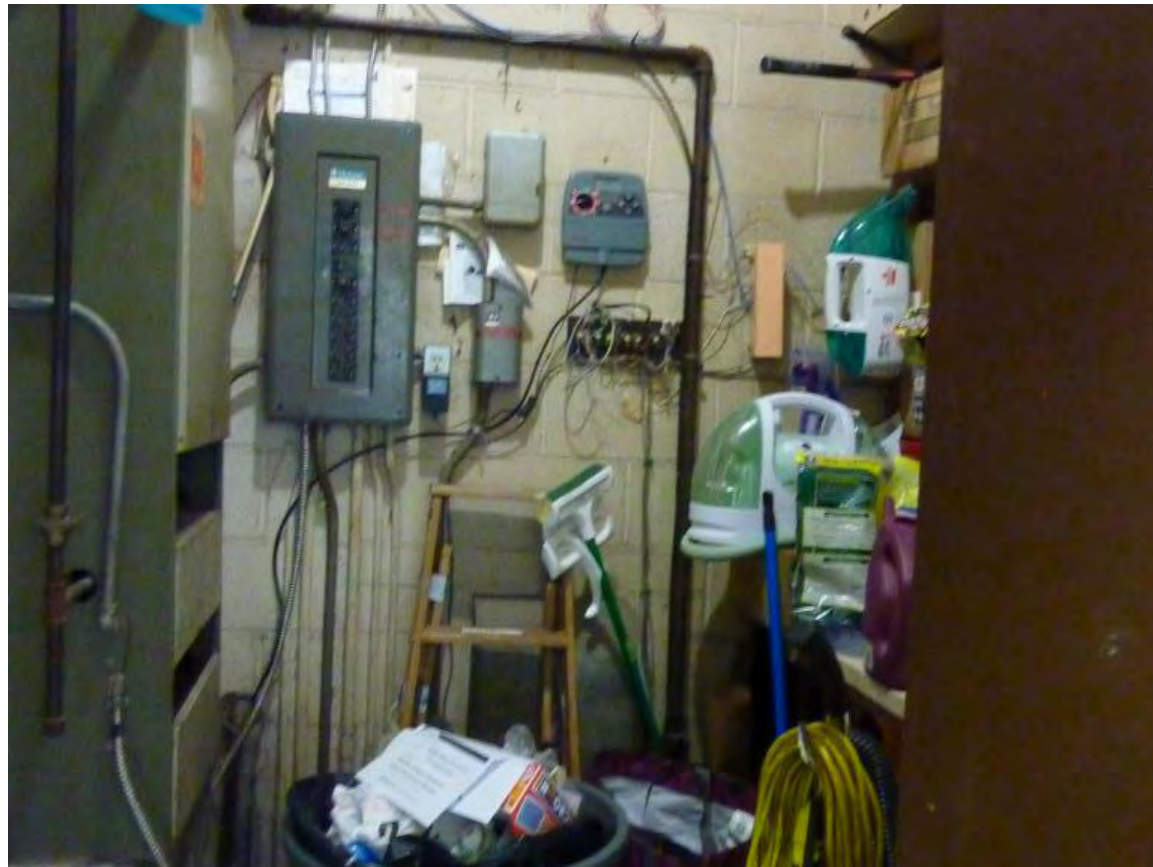


Photo #13 – Storage in mechanical room



Photo #15 – Vending machines limit access into terminal building



Photo #14 – Non ADA compliant drinking fountain and unsafe cords

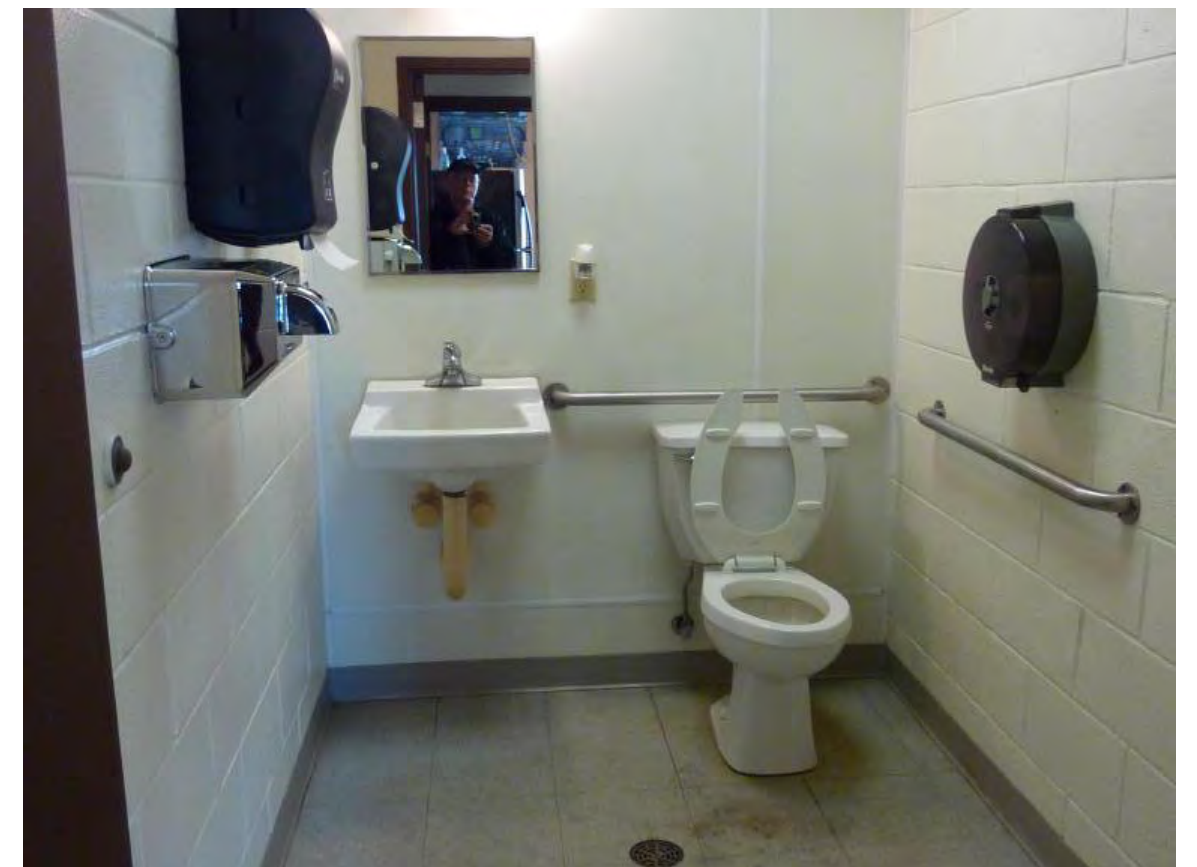


Photo #16 – Non ADA compliant toilets

APPENDIX C
SURVEYS

PARTICIPANT SURVEY
FOR TERMINAL AREA PLAN UPDATE
AT THE FREMONT MUNICIPAL AIRPORT (FET)

Economics	Agree	Disagree
FET is important to the City of Fremont's business community?		
Please elaborate:		

Future Improvements	Agree	Disagree
FET Needs Additional Hangars?		
FET Needs Additional Apron?		
FET Needs Additional Auto Parking?		
FET Needs Additional/New Terminal Building?		
What do you think is needed if not above?		

Alternatives	Rank (1-4)
Alternative No. 1 (Improve Existing Terminal Area)	
Alternative No. 2 (Develop Along West 23 rd Street)	
Alternative No. 3 (Develop Along Airport Road)	
Alternative No. 4 (Develop Along Runway 14-32)	
What would you change about the alternatives?	
Please elaborate:	

Optional Information (You will not be solicited if you elect to provide)
Name _____ Phone () ____ - ____
Business Affiliation _____
Email _____ @ _____ Tail # _____
(Note: surveys will be appended to the narrative report, with editing as necessary)